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ABSTRACT

The remaining volumes of the final report (4-8) all contain research memoranda written in the form of essays by research staff and theorists with expertise. The essays deal with operational strategies and philosophical and theoretical considerations of the dissemination and utilization of knowledge. Volume four includes six research memoranda. Research memorandum number one, by Lee Thayer, provides a brief overview of the study. In the second and third memorandum some thoughts and questions on information systems in the Office of Education and on the Puritan desire to control are given by Tom Deats. Hanno Hardt, in the fourth memorandum, views the impact of technology on knowledge utilization in Western Europe, focusing on the development of education and democracy as social, cultural, and political concepts in technology-oriented societies. Lee Thayer discusses in detail some philosophical and theoretical considerations underlying the Center's work on communication, knowledge utilization, and the educational enterprise in the fifth memorandum. The final memorandum in this volume, written by Robert E. Skenes, reviews literature pertaining to teachers' communicative characteristics. Related documents are ED 061 468, and SO 005 889 through SO 005 896. (Author/SJM)

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Final Report

Contract No. OEC-0-72-0243 (519)

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Toward a Reconceptualization of Knowledge Utilization in Education

Volume 4 of 8 Volumes

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Project: NCEC Knowledge Utilization Study

Research Memorandum #1:

"A Brief Overview of the Study"

Originator: Lee Thayer, Project Director

Date: 18 October 1971

Distribution: Project Associates*

Research Assistants*

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Consultants

Contributors

Public inquiries

A Brief Overview of the Study

Lee Thayer

More and more and yet more is being said these days about what's wrong with American education. Some of it is well considered. Some of it is not. In the heady atmosphere of too many abstractions coming at us too fast and with too little logical development, it becomes more and more difficult to tell which is which. If there really are all of those problems in American Education which we read about and hear about on a daily basis, then the task before us is overwhelming.

A "crisis" often brings on indiscriminate response. If some change is needed, more change must be better; and complete change therefore the goal to be aspired to. Talk of revolution is popular these days. Why not a "revolution" in education as well? Or at least a reformation?

In assessing opportunities as crises, we build paradoxes. The "crisis" in American education is no exception. That institution which is based in the search for truth and for reason is under seige: the ultimatum to it is to achieve these ends and to do so in revolutionary ways or to disenfranchise itself. Reason and truth are presumably no longer adequate bases for the evolution of that institution in which they are housed.

What this sudden richness of criticism, analysis, and evaluation reveals is that we all seem to agree on the essential goals. Where we disagree is on the necessary means.

The situation thus affords us an extraordinary opportunity: to reassess what we have and have not been doing, and the thinking behind both the doing and the not doing.

I

While all of this is not the occasion, it is the context within which the Center for the Advanced Study of Communication (CASOC) has undertaken, supported by the National Center for Educational Communication (NCEC), an exploratory research effort to reassess the causes and the conditions of knowledge utilization in education. The utilization of existing knowledge in the practice of teaching and the enterprise of public education is not the only issue in question. But the utilization of existing knowledge has long been assumed to be the central tenet of orderly evolution in all such rationally-based human institutions, in education no less than in science. Either the process has failed in education, where it has succeeded in science, or the assumption does not hold; or the external demands for radical change are misguided; or there are discontinuities within the system or between the system and the larger society which impede the process. Perhaps there has always been maximum and orderly change in public education based upon sound philosophies and sound empirical knowledge. We do not disavow this possibility. Yet the assumptions which prompt the mutual concern of the CASOC and NCEC is that the process of knowledge utilization in education is not optimum, and

that there may be strategic conceptions of the process which, through tactical implementation, might accelerate and enhance that process in tangible ways.

II

These are the kinds of questions that form the point of departure for this project, which is formally titled, "Toward a Reconceptualization of Knowledge Utilization in Education" (OED-0-72-0243).

More specifically, our first major objective is to reconceptualize the knowledge utilization process in education as taking place within a more or less articulated set of communication systems, epistemic communities, continuous and discontinuous social organizations, and information systems. Our continued surveillance of the literature relevant to the role and functions of communication in change, evolution, innovation, and knowledge utilization suggests to us that an information or information systems-based approach to the conception of the process, and to the design of resources and facilities to aid that process, is incomplete in itself. The effective system within which knowledge utilization takes place includes but extends far beyond the contrived data-dissemination networks and message "packaging," presentation, storage, and retrieval schemes which order the available information.

Our hypothesis is that a more comprehensive conceptualization of this extended system in communication and communication system terms will permit us to develop a systems model which will permit us more strategically to discuss such crucial questions as:

1. What are the conditions which determine the efficacy of a data dissemination system superimposed on a complex ongoing social and communicational structure?

2. For the strategic design of the data dissemination system and its "content," what are the implications of the communication patterns and practices of the "target" audience?

3. From the point of view of the communication patterns and practices of the members of the subparts of the whole system, what would constitute "utilization"?

4. What would constitute optimum utilization in any information system?

5. As an institution and a complex system of social processes, does the educational enterprise in the U. S. present any unique conditions having major implications for the strategic conception of knowledge utilization within it?

6. Will this way of conceiving of the process in its context present any unusual or otherwise imperceptible opportunities for the exploitation of nonprint media?

And so on. In short, the "product" of this first major phase of our research effort will be the modelling of a strategic reconceptualization of the process of knowledge utilization in education. At the outset, we view the process as involving a number of social structures, social processes, and communication systems, over which an information system for facilitating knowledge utilization has been superimposed. We want to know whether our particular way of conceiving of the extended system will reveal any hitherto unrecognized constraints, opportunities, or implications for strategic policy or its implementation. Partly because they have been relatively neglected in this setting, and partly as a matter of expediency, we will eventually be concerned in particular with those constraints, opportunities, and implications for the exploitation of the nonprint media which this reconceptualization makes possible.

We plan to develop our effort more or less simultaneously along several paths:

1. A careful reassessment and continued surveillance of what has been done to date in modelling the process with which we are concerned. This will constitute not so much a reinterpretation of the considerable body of literature now available on knowledge utilization in general and knowledge utilization in education in particular, but an analytic attempt to focus upon those differences between the concepts and assumptions that underlie that literature and the reconceptualization that we will propose. It is expected that certain bibliographies and critical reviews necessary to the development of our own effort will be prepared.

2. Various definitional, conceptual, and exploratory research memorandums will be developed as needed, to fill the gaps between the concepts and perspectives presently available and those that will be needed in the overall structure of our reconceptualization.

3. There are several key unanswered questions. We plan to generate some ways of answering these consistent with our orientation, through small seminars or conferences, through commissioned papers and monographs, through discussions with our several consultants, (see Appendix B), and by other appropriate means.

4. Four parallel but independent efforts will be carried out by the four Research Associates (see Appendix A). Described briefly below, these efforts will be presented in much greater detail in subsequent Research Memoranda:

a) Professor Hardt will concern himself with some of the differences and the similarities between educational change and innovation in Western European nations and the U.S., with a view toward identifying those educational "universals" and cultural variables which may make a difference either to our conceptual framework or to its applicability.

b) Professor Talbott will concern himself with the ramifications for the knowledge utilization process of how the process of "inventing inventions" (i.e., doing "research") is conceived of--the philosophies and assumptions underlying it, etc.

c) Professor Costello will concern himself with the dysfunctions of knowledge utilization systems given the particular ways in which the components function as a consequence of the ways in which they define themselves, or are defined by others.

d) Professor MacLean will concern himself with the relevance and the functions of creativity in knowledge utilization systems.

5. Finally, we anticipate the need to "test out," validate, explore, or develop various aspects of our reconceptualization as it takes form. This will require field consultations, informal discussions, possible simulation, or other means of examining or developing the usefulness or the efficacy of these various aspects of our "model."

The aim of this first major phase of our project will thus be (a) the development and "debugging" of an alternative "model" or strategic way of viewing the process of knowledge utilization in education, in the social-organizational-communicational-technological context in which it occurs; and (b) the development of certain hypotheses grounded in this model which seem to offer special strategic or tactical promise.

The second major phase of our effort will consist of a series of tests, explorations, and exploitations of these hypotheses, with a view toward demonstrating either their strategic or their tactical potential, or both. This effort will not be fully defined until tentative conclusions are reached in the first phase--about December 15. A Research Memorandum describing this

second major phase of our effort will therefore be issued about that time. The overall timetable for the project is presented in Appendix C.

Questions, comments, and suggestions will always be welcome, from any interested source. Please address all correspondence to:

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APPENDIX A

Research Staff

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Associate Professor
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Albert D. Talbott, Ph.D.
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Tom Deats
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Ed McLuskie
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Robert E. Skenes
Graduate Research Assistant

Mary Trapp
Graduate Research Assistant

Kay McDonald
Administrative Assistant and Secretary

APPENDIX B

Consultants

Marvin Adelson: Professor, School of Architecture and Urban Planning, University of California, Los Angeles, was director of the Office of Education's Educational Policy Research Pilot Center when at System Development Center. He is a founder of The Institute for the Future, and of Information Transfer Corporation, Santa Monica, and author of several articles on the utilization of knowledge and technology in education.

John B. Bear: Director of Communication, Innerspace Environment, Inc., San Francisco, was previously Research Director, Child Development, Bell and Howell Co., Chicago and San Francisco, and Director, Center for the Gifted Child, Inc., San Francisco. He has also served as consultant on new educational products development for Encyclopedia Britannica, Xerox Corp., and General Motors, and was Research Associate at the Institute for Personality Assessment and Research (Berkeley) during the 7-year Creativity Study.

Richard O. Carlson: Professor, Department of Education, University of California, (Santa Barbara). He is the author of numerous articles and monographs on educational administration, research, and innovation. He served as a visiting professor in 1965-1966 at the Graduate School of Education, Harvard University, and served as the acting director of the Administrative Science Center at the University of Pittsburg. Professor Carlson has also been a research associate for the Center for the Advanced Study of Educational Administration and Professor of Education at the University of Oregon.

Donald P. Ely: Professor of Education and Chairman, Department of Instructional Technology, Syracuse University. He is past president, New York State Educational Communications Association; past president, Association for Educational Communications and Technology; and president, University Consortium in Educational Media and Technology. The author of several articles in Educational journals, Professor Ely's most recent book is Teaching and Media: A Systematic Approach (with Vernon S. Gerlach).

Richard G. Gray: Chairman, Department of Journalism, Indiana University, was national director of Project Public Information of the U. S. Office of Education 1966-69. He is editor of Education and Communication in a Dynamic Society (with Robert M. Hutchins, Norman Cousins, Stephen Spender, Thomas F. O'Dea, C. West Churchman, et al.).

Sr. Ann Christine Heintz: Initiator and Instructor with the experimental program at St. Mary's Center for Learning, Chicago, with eighteen years experience in secondary educational, rural, urban, and inner-city teaching. A past director of the Curriculum Commission of the Journalism Education Association, Sr. Ann Christine has developed rationales for communications education, developed teaching materials, and initiated national in-service support for the NCTE, NEA, and others, as well as preparing such high school textbooks and worktexts as Introduction to Independent Learning.

Anthony M. Hodgson: Director, the Centre for Structural Communications, and technical director, Structural Communications Systems, Ltd. Mr. Hodgson has done research in group dynamics, the structure of knowledge, and educational technology at the Institute for Comparative Study (England), has teacher qualification from the University of London Institute of Education, and is co-developer of a unique program for examining individual thought processes (in a group setting) for the solution of knowledge-utilization problems.

Paul F. Lazarsfeld: Professor Emeritus, Bureau of Applied Social Research, Columbia University. He is past president of the American Sociological Association and AAPOR. Professor Lazarsfeld has published extensively on problems of opinion research, methodology, and uses of sociology. A few of his American publications include: The People's Choice, Radio and the Printed Page, Mathematical Thinking in the Social Sciences, The Academic Mind, and The Uses of Sociology. While at Columbia University, he became Quetelet Professor of Social Science, and Chairman of the Columbia Bureau of Applied Social Research. He has also taught as a visiting professor at several universities, including two years at the Sorbonne in Paris.

Robert S. Lee: Education Research Administrator, International Business Machines Corporation, was Associate Director for the Psychological Corporation and senior project director for McCann-Erickson, Inc. The author of several articles which reflect his research interest in the environment of public education and in curriculum development and teaching, as well as basic research on the role of belief systems in communication with various publics, Dr. Lee's most recent book is a comprehensive review of current simulation and experience-related learning techniques, entitled Experience Learning.

Everett M. Rogers: Was Visiting Scholar, Institute for Communications Research, Stanford University during 1970-71, on leave from his regular post as Professor, College of Communication, Michigan State University. His teaching and research interests are the communication of new ideas; his best known book is Diffusion of Innovations, and his most recent work is Communication of Innovations: A Cross-Cultural Approach.

Lawrence Rosine: Senior Analyst, Midwest Research Institute (Kansas City), was previously Program Director of the Aerospace Technology for Regional Advancement Effort, supported by the Technology Utilization Division of NASA, and for ten years editor of Electrical Design News and manager of marketing services for the Wilcox Division of American Standard. He has done research on the problems of communicating to aged audiences, adoption of an emerging media and political activity in national elections, the study of the problems of educational television, and the production of audio-visual materials.

Frank E. Schooley: Director of Broadcasting and Manager of WILL, AM-FM-TV, and Professor of Radio-Television at the University of Illinois. He is currently serving on the Board of Directors of the Corporation for Public Broadcasting to which he was recently reappointed by President Nixon. He is past president of the National Association of Educational Broadcasters and a former member of the Joint Council on Educational Television. He has also served as member and officer in numerous local and state, professional, civic, and charitable organizations.

Robert Lewis Shayon: Contributing Editor for television and radio, Saturday Review, Professor of Communications, the Annenberg School of Communications, University of Pennsylvania, is a distinguished writer-producer-director in broadcasting and associated media. Involved in educational broadcasting since its inception, he is a member of the Board of Directors of the National Association for Better Broadcasting, a member of the Educational Broadcasting Consultants Panel of HEW, a member of the Federal Communications Committee's National Committee on Instructional Fixed Television Service, and was recently appointed a member of the Board of Trustees, the National Citizens Committee for Broadcasting. Author of one of the earliest studies on that subject, Television and Our Children, Mr. Shayon's most recent book is Open to Criticism.

William Stephenson: Research Professor, School of Journalism, and Director, Communication Research Unit, Missouri Regional Medical Program, at one time Director of Research, Nowlands and Co. (New York), and Consultant Psychologist to the British Army, he has held his post as Distinguished Research Professor at the University of Missouri at Columbia since 1958. Professor Stephenson's most recent research work has involved the problem of communicating new knowledge in medicine both to practicing physicians and to various publics.

Randall M. Whaley: President, University City Science Center, 3508 Market St., Philadelphia 19104. Dr. Whaley was previously Principal, Cresap, McCormick, and Paget, Inc. (New York), with specific responsibility for consulting with educational institutions, and Special Consultant, American Council on Education, after a distinguished administrative career at Purdue University, Wayne State University, and as Chancellor of the University of Missouri at Kansas City. He has served as Executive Director, Advisory Board on Education, National Academy of Science-National Research Council, and as President of the American Science Film Association, and the International Scientific Film Association. The University City Science Center is a large and complex enterprise designed specifically to accelerate and facilitate knowledge utilization.

APPENDIX C

The Timetable

The timebable in brief is as follows:

September 1, 1971, start of project

November 15, 1971, first report to NCEC: description of work to date, first elaboration of conceptual framework for second stage work, and first outline of specific research, simulation, etc., to be carried out to explore or test or further elaborate the conceptual framework proposed

January 15, 1972, final concurrence between the project staff and the OE project officer on the schedule for the remaining work

February 15, 1972, technical progress report, including final scheduling of all remaining work

August 1, 1972, preliminary version of final report to OE project officer

August 31, 1972, final report and termination of project

PROJECT: NCEC Knowledge Utilization Study

RESEARCH MEMORANDUM #2: "Some Thoughts and Questions on 'Information' Systems and the Office of Education"

ORIGINATOR: Tom Deats
research assistant

DATE: 27 September 1971

DISTRIBUTION:

- Project Associates ✓
- Research Assistants ✓
- NCEC Officials
- Practicum Participants
- Consultants
- Contributors
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We believe the day is not far distant when the ERIC network will link universities, professional organizations, school systems, boards of education--the entire educational community--to speed all research results to places where they are needed and when they are needed. That is our goal.

--Lee G. Burchinal

Assistant Commissioner,
National Center for
Educational Communication

The purpose of this paper is to develop some thoughts and questions about the organization, the function, and the consequences of the establishment and operation of the U.S. Office of Education's (OE) various information or data acquiring-processing-creating-disseminating services and programs. Of particular interest and emphasis in this brief paper is the Educational Resources Information Center (ERIC) which is a program of the Bureau of Research of the Office of Education.

Historically education in the United States has been the responsibility of the individual states rather than the federal government. As a result of this a complex array of diverse educational training and research operations has grown into being. "The research structures in the United States that relate to education are so numerous and diversified that it is impossible to speak with unassailable authority about

their current activities and organizational patterns."[1]

In very general terms one can say that traditionally there have been three major sources of dissemination of educational research information in the United States: 1) Professional associations; 2) Universities; 3) Government agencies.[2] Under these three very general headings one could also place the sources for most of the educational research programs in this country except those which are funded and operated by private and indutrial organizations. Top officials in the Office of Education tend to view three audiences as being the primary target of educational research dissemination programs: 1) Researchers; 2) Educational decision-makers and practitioners; 3) General public.[3]

In recent years the Federal Government has become more and more a major agent in the dissemination of educational research information throughout the country. Ostensibly ERIC was designed to develop "a national information system dedicated to the progress of education through dissemination of educational resources and research-related material."[4] The ERIC program was developed by the Office of Education primarily because OE people saw a need for

1-Sam D. Sieber, "Institutional Setting," in The Role of Educational Research in Educational Change--The United States, Conference on the Role of Educational Research in Educational Change UNESCO Institute for Education, Hamburg, Germany, July 19-22, 1967. (ERIC document # ED 012 505), p. 3.

2-Thomas D. Clemons, "Dissemination of Research Results," in the above UNESCO document, pp. 40-57.

3-Ibid.

4-Wesley Simonton, "Implications of the ERIC Clearinghouse for Library and Information Sciences," Special Libraries, December, 1968, p. 769.

obtaining information about the various research and development projects funded by that office, and because OE people believed that educators needed to have ready access to the work of other educators and educational researchers.

From its beginning the ERIC system was designed to be a de-centralized nation-wide information system whose "products" would be developed and disseminated by subject-area experts rather than by information system specialists, librarians, or documentalists.[5] The primary objective of the ERIC system centers on the dissemination and the utilization of educational information within the "educational community." At present the major functions of the ERIC information clearinghouses include:

--The identification and acquisition of "fugitive" documents and literature such as technical reports, unpublished speeches, etc.

--Evaluation of the literature collected from all sources.

--Indexing and abstracting documents, literature, etc., for inclusion in the monthly ERIC catalogues, RIE, etc.

--Building and maintaining local clearinghouse files of documents, literature, etc.

--Analyzing information which is of general interest to the educational community and presenting such analysis in state-of-the-

5-Harvey Marron, "ERIC...A National Network to Disseminate Educational Information," Special Libraries, December, 1968, pp. 775-782.

art papers, reviews, bibliographies, etc.

--Providing documents (copies) which are not readily available from other federal clearinghouses or information systems, or which are not "in" the central ERIC system.

--Development and maintenance of close ties with professional associations and agencies in the educational communities served by the particular clearinghouse.

One of the major assumptions of the planners of the ERIC system is that "the development of a comprehensive announcement service and an accompanying mechanism to acquire...documents at a reasonable cost are prerequisites for the wide-spread utilization and adoption of new ideas and practices in education."[6] In addition the ERIC planners felt that it was crucial to "develop a multi-level set of resources and organizations to provide the more direct information and consultive services for the user community."[7] Thus the ERIC system builders planned to establish and maintain relationships with regional laboratories, research and development centers, instructional materials centers, state-operated agencies, and local "one-stop" information centers. Such organizations were seen as "links" between

6-Ibid., p. 778.
7-Ibid.

the information system and the ultimate users of the information.

In their system the ERIC people view the relationship between the central system (ERIC) and the local and state operated centers and other OE research and development centers and laboratories as a kind of "information merchandising" in the market place of ideas. Harvey Marron, for example, who is director of the OE's Information Resources division has said that "ERIC can serve as a 'wholesaler' of information products and services while the activities [of the regional labs, R-D centers, etc.] can be the 'retailers' which can form the essential interface with the actual users of the products and services."[8]

Apparently, then, one of the basic assumptions behind the rationale of the ERIC system (and other OE information systems) is that educational research "information" is a product which educators in the field not only need but want and will be willing to "buy" i.e., expend some energy and time in order to obtain.

However, an interesting paradox is evident when one looks, for example, at the adoption of innovation in education. As one OE administrator has pointed out, many if not most of the "innovations" in educational systems and programs throughout the country, "have been innovations,

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8-Ibid.

or inventions, right off the top of the head, growing out of intuition."[9] Thus information is envisioned as being rational and more accurate than intuition; and much educational innovation is seen as being based upon "intuition" rather than upon "information." But if "information is really as desirable and needed a "product" as the ERIC rationale apparently assumes it to be, then why are educators still "buying" intuition rather than information? And would educators "buy" information even if it were more readily available than intuition?

Perhaps it would prove more useful if we thought of intuition as a form of information. It might, in fact, take "intuitive information" on the part of an individual to recognize that he or she really "needs" or "wants" more "rational information."

In attempting to build a de-centralized national educational information system or network, the ERIC planners were hoping to keep educators with special interests involved in the entire program rather than allowing librarians, etc., to operate the program. Such an approach was thought to helpful in maintaining close contacts at various levels with educators "in the field." The ERIC planners also were aware that educational experts in research are not necessarily more "expert" than classroom teachers vis-à-vis educational "problems"

9-Thomas D. Clemons, "Information Transfer and Research Utilization in Education," a speech before the Michigan Department of Education, July, 14m 1969. (ERIC document # ED 0 39005.)

at the classroom level. In addition the ERIC planners also recognized that different "kinds" of information are needed at different times by the same people in any decision-making process.[10] Thus it was assumed that if one could supply educators with all the different "kinds" of information available, the individual educator could select that which he or she felt was the kind of information needed, viz., that which was most "relevant."[11]

Now, one very simple way to develop "kinds" of information is to divide the mass of available data into categories or subject areas. A look at the subject areas established for the ERIC clearinghouses indicates to some degree what areas were deemed most important (for whatever reason) by the ERIC planners. The question may be asked how "relevant" to the potential users of the ERIC information were and are these subject areas and the subsequent "kinds" of information placed in these categories?

One may also question how "relevant" to the education of millions of students is an educational "information" system which cannot be used by students except those at the university-college graduate level?

It is also interesting to ask if students, of any age or grade level other than the graduate level, are participating

10-Ibid.

11-See John Coulson, "A Comparative Study of Differences in Judged Relevance of Abstracts Located by Two Information Systems," (ERIC document # ED 0 39008).

in OE educational research and development laboratories or projects as researchers? Is it necessary to assume that grade school students, for example, can only serve as "subjects" in educational experiments and research projects, and not as researchers? It probably is necessary to make this assumption if one insists that the only kind of research which is "good" is that which is "scientific" (read scientistic) research.

As for the subject areas of the clearinghouses there are at present clearinghouses for Teacher Education, Social Science Education, Higher Education, Early Childhood Education, Adult Education, Handicapped, Reading, Linquistics, Science and Mathematics, English, Tests, Measurement and Evaluation, Library and Information Sciences, etc. (None of which can be used by students below the graduate level.)

There is no ERIC clearinghouse on philosophy.

Nor an ERIC clearinghouse on art; nor one on how to utilize leisure time.

Nor is there an ERIC clearinghouse designed to to supply teachers with problems rather than answers (i.e., "information). In fact an apparent implicit assumption of the ERIC system is that by the time one goes searching in ERIC for "information" he has "the problem" pretty well defined or at least named. But if this is so, is what the system user needs "information" which fits the problem as named or as defined by him--or would it be more benificial

in the long run to provide alternate ways of going about naming "the problem?"

How much, if any, of the "information" processed and disseminated by ERIC and other OE information services is "in-forming?" That is, how many people who have utilized ERIC or other OE informational programs have changed their basic conceptual frameworks as a result of the use they have made of OE products? How would one go about determining this? And should this be a criteria for success or failure?

If we talk of the utilization of knowledge, and the dissemination of information, what are our criteria for determining what we want to mean by "knowledge," or "information," or "utilization"? If, for example, "utilization" of the "information" processed and stored in an ERIC clearinghouse is to be determined by the number of requests for documents, microfiche, papers, etc., one could easily increase (probably rather dramatically) the "utilization rate" by merely increasing the ambiguity of the document titles. This would in turn have the effect of increasing the "relevance" of the stored documents—for the less people know about a subject the greater is the tendency to judge many items"relevant" than when they have adequate evidence to discriminate between what is "relevant" for their purposes and what is not. With ambiguous titles (e.g., computer numbers and broad "descriptors") anyone utilizing ERIC would be forced to request many documents in order to select a few

which might prove useful. (Of course, if the titles are too ambiguous few people will make use of the system.)

We must, I think, decide whether when we talk of "information and "relevance" and "knowledge" and "utilization" we are pla ing the criteria for their determination within the parameters of the data-information processing apperatus of an OE "information system" or within the individual's communication system--i.e., within the relationship between the user and the "product."

It may well be that the way in which we concieve of "information" by and large determines the kind of information "in" the information systems we build. If "information" is thought of as being rational, objective data, facts, empirically sound, etc., then the "information system" will probably be built to provide "answers" rather than questions. Perhaps "information systems" would be more useful if their "information" was speculative, theoretical, philosophical, value-laden, etc. People may need good questions more than they need good answers.

Note: All material cited in this memorandum is available in the Center library files in CC 300.

PROJECT: NCEC Knowledge Utilization Study

RESEARCH MEMORANDUM #3: "Educators, Information, and the Puritan Desire to Control."

ORIGINATOR: Tom Deats
research assistant

DATE: 18 OCTOBER 1971

DISTRIBUTION:
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Research Assistants ✓
NCEC Officials
Praticum Participants ✓
Consultants
Contributors
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Educators, Information, and the Puritan Desire to Control*

The puritan is always with us. And if for some reason there were none we should, as Randolph Bourne once noted, have to invent them. For man is forever devising ways and new methods of self-denial and self-esteem. What gives the puritan the edge over most of us "reformed puritans" who have neither the faith, stomach, nor dedication of the staunch, full-fledged puritan, is the puritan's devotion to control.

It is the desire to control oneself, others, and the world that drives and ultimately permits the puritan to succeed; and the successful puritan is the most satisfied of all creatures. As Bourne put it, the puritan:

> ...must get satisfaction or he would not be so prevalent. I accept the dogma that to explain anybody we have to do little more than discover just what contentment people are getting from what they do, or from what they are permitting to have happen to them, or even from what they are flinging their will into trying to prevent have happen to them. For, if life is anything

*The ideas fundamental to the development of this memorandum stem from a reading of a short article by Randolph Bourne entitled "The Puritan's Will to Power," which was first printed in The Seven Arts, vol. 1 (April, 1917), pp. 631-637.

positive, it is the sense of control.[1] *

The puritan achieves his control through the curious and apparent paradoxical satisfaction of impulses toward self-esteem and self-abasement--toward personal impulses of <u>being regarded</u> and <u>being neglected</u>.[2] By brewing a powerful mix of these two impulses the puritan develops recipes of self-sacrifice and absement (e.g., meekness, regimentation, renunciation, discipline, etc.,) which in time come to be viewed as virtues and idealized goals. When such modes of self-absement become idealized modes of behavior the puritan satisfies his impulse for self-esteem through self pride in meeting the demands of his regimentated life. A supreme puritan goal is self-control (especially in the face of adversity) and his concomitant pride in its achievement. Thus, "The puritan gets his satisfaction exactly where the most carnal of natural man gets his, out of the stimulation of his pride."[3]

Now, it would appear that there are a great number of puritans in this country's educational community. In fact, the entire thrust of thinking that leads to the idealization

1-<u>Ibid.</u>, p. 632.
2-<u>Ibid.</u>, p. 633.
3-<u>Ibid.</u>, p. 635.

that "information" or "knowledge" or the "disciplined search for knowledge" are good in and of themselves smacks of intellectual puritanism. For there are no intrinsic virtues in "information" or "knowledge" although they may be of great pragmatic value. Knowledge and information only become virtues when they are idealized. It is only when one becomes proud of knowledge, or proud of information, or proud of the search for knowledge that one gains self-satisfaction from these. "The puritan only begins to reap his satisfaction when the self-regarding impulse comes into play."[4]

How many educators, proud of their knowledge and proud of their searching for knowledge wield these "virtues" much in the manner of a Bible-belt evangelist thumping his Good Book? How much of the education dedication, discipline, and regimentation of learning techniques viewed by many as "necessary" for education are in fact necessary for learning? How much is just contrived puritan self-absement and self-esteem? To the real puritan the virtue of knowledge lies not in what is known but in the imposition of what is known upon others. Thus there develops "right ways" and "wrong ways" of learning and discovery; "right ways" and "wrong ways" of obtaining information; "right sources" and "wrong sources" of information. For the true puritan the beauty of knowledge lies not so much in the "content"

4-Ibid., p. 634.

nor even in the "process" but, rather, in the source: If the source is "right" the knowledge must be "right."

How much of the failure or refusal of classroom teachers to utilize "information" sources such as ERIC is puritan self-sacrifice? That is, to what extent are classroom teachers "proud" of their self-abasing ignorance of educational research and "proud" of their humility and self-deprecation exhibited when they admit they do not use such material and couldn't understand it if they did.

How much of the self-righteous puritan ethic of sacrifice and denial lies in the teacher's lament that many vitally needed educational materials and facilities are seldom if ever available in the needed quantities but somehow he or she will struggle (proudly) and manage to "get the job done!" The humble struggle of the public school educator against tremendous obstacles (including, of course, poor students and low salaries) may be a way of making oneself, like the puritan, "unhappy in ways that are not quite severe enough to excite pity and yet run no risk of arousing envy."[5]

The builders and operators of educational "information" systems such as ERIC at times appear to be puritans wandering in search of prodigal sons and daughters (i.e., teachers) to drink from the Holy Data Grail. The puritan desire for simultaneously being regarded and being neglected would appear

5-Ibid., p. 634.

to be fulfilled in the "plight" of these educational information disseminators whose great stores of data are highly regarded but seldom used. One would suspect that perhaps not a few "information specialists" enjoy their plight--taking pride in their data and pride in their self-sacrifice in obtaining this data which is neglected. At times data is spoken of with moralistic fervor -- is the "need" to spread the good word of educational research.

The puritan seeks control. And the puritan information specialist attempts to control what information is available, determines which information is "good" and which is "bad", which is "needed" or "necessary" and which is not. The puritan information specialist not only determines which "problems" are most important but which answers are most appropriate. He thus seeks to attain control over what educational tasks are to be undertaken and the manner in which they are to be completed. The true puritan is a self-sacrificing individual who "is at once the most unselfish and the most self-righteous of men. There is nothing he will not do for you, give up for you, suffer for you. But at the same time there is no cranny of your world that he will not illuminate with the virtue of this doing of his."[6]

The essence of puritan thinking lies in the combining of selfless devotion with self-righteousness. Now, the true

6-Ibid., p. 635.

puritan is also an evangelist--he must spread the good word. Selfless devotion and self-control are not enough to attain control unless they can be made into ideals for others to follow. And when others do follow those ideals it serves to confirm and justify the puritan's self-sacrifice. But to get others to seek an ideal one must not only spread the word one must also ultimately enforce the word.

A primary mode of puritan behavior and sacrifice is the renouncing of "things" which make life easy and from whose use one must abstain. For teachers one of these "things" to be avoided may be educational research information. By renouncing the need for educational research information or of participating in research itself, the puritan teacher must not only abstain but must convince others to abstain.

> In the compeling of others to abstain, you have the final glut of puritanical power. For in getting other people to renounce a thing, you thereby get renewed justification for your own renouncing. And so the puritan may go on inexhaustibly rolling up his satisfaction, one impulse reinforcing the other....the puritan is so well integrated, he almost always rules. The person whose satisfactions of control are more various and more refined is on the defensive against him. 7

Ways of knowing--viz., ways of "seeing" the world--are essentially ways of controlling the world and one's relationship

7-Ibid., p. 636.

to that world. The various communicational skills and techniques man develops reflect to a greater or lesser degree the ways he views the world and himself. Often new ways of viewing the world spur the development of new strategies of communication.

If communication is viewed as a process whose primary aim is to develop organization and control it can be seen that much of what man "communicates" and how he "communicates" are basically conservative--i.e., designed to minimize not maximize change. Man tends to hang onto those ways of viewing the world which have proved most useful to him in the past. New ways of seeing threaten the old ways.

Some people are apparently satisfied with a few basic views of the world, while others, for whatever reasons, are satisfied only with diverse viewpoints. The puritan may well be, as Bourne said, "a case of arrested development."[8] If so, no amount of "information" generated for the puritan's use will suffice to insure his growth and development. Thus the goal of education research information dissemenation perhaps should not be aimed at "saving" the puritan but, rather, at "corrupting" him and in providing alternatives to the existing pagans. For as Bourne noted: "Perhaps no one can really be a good appreciating pagan who has not once been a bad puritan."[9] And there is more than a little of the puritan in each of us.

8-Ibid., p. 636.
9-Ibid., p. 637.

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Project: NCEC Knowledge Utilization Study

Research Memorandum #4:

"Western Europe: A Look at Social, Cultural and Political Conditions for Education, An Outline"

Originator: Hanno Hardt, Project Associate

Date: 8 November 1971

Distribution: Project Associates*

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Western Europe: A Look at Social, Cultural and Political Conditions for Education, An Outline

by Hanno Hardt

The following remarks are intended to describe the nature of a satellite project of the NCEC Knowledge Utilization Study presently conducted by the Center for the Advanced Study of Communication at the University of Iowa.

As an exploratory study of the impact of technology on knowledge utilization in a number of European countries, this project will attempt to provide some comparative observations of roles and functions of educational systems by focusing on the development of education and democracy as social, cultural and political concepts in technology-oriented societies. The results of this project may help define the problem of knowledge utilization in the United States by providing additional information about educational changes and innovations under varying conditions of social, cultural and political communication. They may also contribute to the interpretation of knowledge as a social phenomenon subjected to the legal and political processes of contemporary societies.

Traditionally, education in Western Europe has been concerned with the role of communication. In this there has been no change, since even the most recent events to bring about a 'radical' change of educational philosophies (and this includes the reform movements in the United States as well) have grown out of a serious concern about communication, popularly expressed in terms of improving human relations or educating individuals for a better understanding of others and themselves and their roles in society. Earlier, verbal skills and the mastery of literature, for instance, were expressions of similar concerns,

and values placed upon communication by educational theories stressed the importance of man's knowledge of man and emphasized the study of history, classical literature, languages and moral philosophy, in particular.

Although theories may have changed over time, the education of the young has always been considered a major social task. While educationalists argued once for the protection of the young mind against external influences and disruptions of the school effort during the years of a student's formatio, later theorists favored a confrontation with the complexity and difficulty of contemporary life throughout the period of formal education. At all times, society recognized the importance of education for its own survival, growth and stability, and formulated specific social and political programs to give direction to the educational enterprise. Financed and directed as a 'public' activity, education became a legitimate problem of society that could be dealt with more effectively in an institutional setting rather than in the home. The separation of the individual from his family for purposes of 'getting an education' increased the chances for a successful control of content and context of the educational effort; it also moved the burden of responsibility for an education as a valuable experience from the family unit to the larger social group able to create and enforce appropriate laws that reflected the sense of urgency and the value attached to public education.

Given its original framework, however, education as a mirror of society throughout the history of Western Europe has reflected only the values of the middle class bourgeoisie. Under the social and political rule of a bourgeois society, education discriminated successfully between the privileged few, whose training in lycée, Gymnasium and university prepared them for careers in

government, business and industry, and the majority of the people, whose primary education was to equip them for the responsibilities of a citizenry through reinforcement of cultural values and confirmation of political and economic alliances that helped maximize the stability of society. Accordingly, the goals of education could be defined as the fulfillment of human values held by political and economic powers which either had replaced particular interests or desires of individuals through political force or had claimed their legitimate representation through various processes of the democratic system.

Problems of education, unlike scientific problems, arise because of the inconsistencies or inadequacies in the social order; unlike scientific solutions, the solution of educational problems rests upon the creation of a social environment that believes in change as a morally desirable condition and that supports the idea of technology as a necessary conceptual scheme that allows for the implementation of changes. In this context, education as a dialogical situation has undergone a number of transformations.

The face-to-face relationship of the oral tradition, when individuals learned by listening and questioning and when memorizing was regarded as more important than the learning of letters and the spelling of words, was drastically changed by the print age when written records and books replaced individuals as teachers, when knowledge was stored in type not unlike contemporary memory banks, and when man gained the freedom to read and to write, thereby extending but also transforming the character of the dialogical relationship between teacher and learner.

These changes of technology almost immediately converted questions of controlling the environment from those of territorial domination and physical expansion to those of control over the dissemination of thoughts and ideas, and resulted

in the adoption of the technology of communication for educational purposes by the spiritual and secular powers of Western Europe. Thus, the ruling elites had taken the evolution of man into their own hands and carefully maintained its control throughout the following periods of social and political change into the age of democracy. In the meantime, the rise of industrial powers and the increased sophistication of technology encouraged the development of a manager-elite, whose political and economic values were eventually reflected in the educational systems and in the minds of the young who were being prepared for careers in the technocracy of Western Europe, not unlike their great-grandfathers who had learned to respect and live with the values of agricultural and trade interests of medieval states.

Technology, not unlike democracy, is a process whose intensity is a major force in society. It also contributed to the increasing separation of individuals from a control over their social and political environment, a problem that has been repeatedly dealt with by Max Weber, Herbert Marcuse, Erich Fromm and others. In this respect, communication as an instrument of technology, and specifically in the context of education and democracy, helps propagandize an ideology of technological progress that is based upon the myth of the democratic process. What is suggested here is that technology has brought about by its own nature a conceptual change of education and democracy. In addition, within the sphere of institutionalized education, the problems of knowledge utilization may also be affected by the preoccupation of modern educationalists with techniques of communication, not unlike technocrats, with the result that considerations of communication and education in the broader sense of social and physical well-being of society are translated into further designs of systems of dissemination or knowledge utilization within the educational system, instead of alternative and 'unconventional' systems inside and outside the formal institutions.

In its quest for knowledge, society has moved from the pursuit of knowledge under difficulties, to the difficulties of coping with a knowledge explosion.

Following are a number of hypotheses that summarize a number of conclusions that will be discussed in the final essay by the author; and in one way or another, by the European contributors to this project.

. . . . . The problem of democracy and society as a nineteenth century phenomenon has been followed by technology as a philosophical problem of contemporary man.

. . . . . Mass communication media provide technocrats with the capabilities to mobilize the masses as consumers; they do not offer the masses the opportunity to mobilize against them.

. . . . . Education in technological societies is defined as a process of economic growth and development; e.g., education for production, education for consumption, education for work (or leisure) as a form of consumption.

. . . . . Knowledge utilization in technological societies is identical with raising the levels of production and productivity.

. . . . . The age of technology encourages the centralization of knowledge generation, diffusion and utilization through educational institutions and mass media.

. . . . . Education as an evolutionary process of society provides a necessary control for the spread of technology as a twentieth century ideology.

. . . . . Mass communication media contribute to the expansion of technology and to the education for technology beyond political and cultural boundaries; they are by their very nature polycentric enterprises.

. . . . . Mass communication media reflect the values of a technological society in the selection and presentation of information as a form of education.

. . . . . Knowledge and knowledge utilization in a technological society are defined in terms of access to the organization of information and to the techniques of data collection and storage. They are defined as systems problems and not as problems of the individual coping with his environment.

. . . . . The philosophical reconciliation of the concepts of democracy and education is insufficient to accommodate for the changes by technology.

. . . . . A return to democracy as a social process (and to what this would imply for the questions of knowledge utilization, education and technology) is impractical, if not impossible, since revolutions are no longer the tool of the masses, but can be made only by those in control of the technology.

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   1: Educational Expansion in OECD Countries Since 1950, 1969.
   2: Comparative Study of Educational Expenditure and Its Trend in OECD Countries Since 1950, 1969.
   3: Teaching Staff and Educational Expansion Developments of Secondary Education, Trends and Implications, 1969.
   4: Group Disparities in Educational Participation, 1970.
   5: Educational Policies, Plans and Forecasts During the Nineteen-Sixties and Seventies, 1970.
   6: Changes in Secondary and Higher Education, 1970.
   8: Educational Planning Methods, 1970.
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   11: Education and Distribution of Income, 1970.
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Project: NCEC Knowledge Utilization Study

Research Memorandum #5:

"On Communication, Knowledge Utilization, and the Educational Enterprise"

Originator: Lee Thayer, Project Director

Date: 30 November 1971

Distribution: Project Associates*
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Preliminary Draft

On Communication, Knowledge Utilization, and the Educational Enterprise

Lee Thayer

There has been much concern, in recent years, with "knowledge" utilization. The guiding assumption behind much of this concern has been that any way of improving the dissemination or increasing the utilization of "knowledge" will directly benefit the human institution or human enterprise in which this improvement occurs, and will indirectly, therefore, benefit mankind.

On the face of it, this is a perfectly reasonable assumption. We've seen what "science" has been able to accomplish by concerning itself with the timely and proper utilization of its growing body of formal theory and research --its "knowledge." Why couldn't the same success be had in

other human endeavors like agriculture, social and economic development, industry, medicine, indeed, even education? All that seemed to be needed was to find or invent just the right combination of technics, and the success story of science could be duplicated in literally all of man's endeavors.

So it has come to pass that this recent concern with knowledge utilization, in many quarters, has produced an already formidable collection of literature on the subject of knowledge utilization itself. In one major attempt to survey and assess this literature,[1] Havelock argues the need for a new science--the "science of knowledge utilization." He cites as the two social forces which give urgency to the development of this new "discipline," first, that there is a "knowledge explosion" which needs to be ordered and contained and second, that more and more people seem to feel that "knowledge should be useful to men."

Such observations are so commonplace that they seem self-evident. They seem valid and "true," in the sense, however, in which Hitler's propaganda manager Goebbels said things could be made to seem "true"--by repeating them often enough.

Havelock's assumptions can be taken as representative of those that have prompted and presently guide much of this recent concern with knowledge utilization. They are not, however, altogether accurate or tenable. It seems necessary, therefore, to consider those assumptions more

thoroughly before proceeding.

The Need for "More" Utilization

Underlying most of the literature on knowledge utilization is the assumption that there is a need for "more" or "better" utilization of knowledge. In many instances, this is based on the further assumption that there has been a "knowledge explosion."

Part of the difficulty is, of course, semantic. The "very large increase in the output of scientific knowledge" to which Havelock refers is not to be attributed to the fact that "scientists" are individually more knowledgeable of a greater proportion of all that could be known, but to the fact that the technics for acquiring, processing, and disseminating data have greatly increased the capacity for producing, storing, and distributing raw data. The inventory has simply grown, as Parkinson would say, to fill the capacity.

Where is the hard empirical evidence that it is knowledge which has increased? As Paul Weiss has observed, this "purported explosion is merely a glut of unassimilated data...."[2]

The posture of many of those who have researched or written about "knowledge" utilization would have us believe that "knowledge" is a commodity which can readily be packaged and stored and disseminated and "utilized." But human

knowledge is not a commodity to be marketed and consumed like a can of hair spray; it is rather a matter of "deep insight and understanding," as Weiss says. Knowledge is not a technical commodity, but a human achievement.

This particular assumption is also faulty because it subtly and obliquely gets the cart before the horse. The argument almost seems to be that, because we can produce and file and distribute more data faster, we are under some moral or "scientific" obligation to consume it faster. The circularity of that kind of reasoning strikes me as ironically irrational, given the context.

The Values of Utilization

A second kind of basic assumption one finds in the literature on knowledge utilization is that utilization is pure virtue, and that there is some sort of purely positive correlation between the rate of consumption of available data and the rate of benefit.

Brought to the light of day in just that way, such an assumption is obviously absurd. But it has nonetheless given life to a large proportion of the several thousand studies of knowledge utilization to date. Many of those who have done the major work in knowledge utilization have claimed "scientific" status. Yet the task of science is to question its own assumptions, not just to engineer a solution to some--even highly valued--objective.

Some years ago it was suggested to the Technology Utilization Division of the National Aeronautics and Space Administration that any legitimate comprehensive study of the process of technology utilization[3] would have to include those instances in which there was "transfer," but in which the "transfer" (of "knowledge") was disadvantageous or dysfunctional for the "transferee." Their response was, in effect, "But we don't want to know that." In many respects, the literature on knowledge utilization suffers the same shortcoming. One searches in vain for studies of those instances in which "knowledge" utilization led in fact to disimprovement, or in which utilization (of some new "knowledge") was destructive or debilitating. It could hardly be doubted, for example, that at least some of the problems we face in this modern world have been brought down on us as a result of the utilization of the technological knowledge that was available at some earlier time.

By-and-large, those who have studied "knowledge" utilization, and particularly those who have studied "knowledge" utilization under the aegis of some outside grant or research contract, have concerned themselves not with the phenomenon, but with vindicating the widespread belief that utilization is pure virtue. That there is no compelling empirical evidence for holding to such a belief is a useful point of departure for bringing into question some of the fundamental concepts on which dominant models and theories of "knowledge" utilization have been based.

Observations on the State-of-the-Art

Since the purpose of this paper is to present neither a synthesis nor an extension of present "models" of the process of "knowledge" production-distribution-utilization, but to develop an alternative way of thinking about and looking at the process, it would be grossly misleading to start with the usual "review" of the literature. In any event, this has been adequately done by Havelock, Rogers, Schon, and Carlson, and many others.[4]

Rather, it will be most fitting to proceed by bringing into question certain of the fundamental concepts on which the dominant "models" and "theories" of the process have been based.

First, it could hardly be overlooked that most of those who have written about "knowledge" utilization in this century have been very much caught up in the general western world's love affair with scientism. This orientation manifests itself in several ways. There is, for example, the widespread belief that if enough data is collected, its sheer bulk will somehow produce "truth." There is as well the belief that if one goes about things in the proper way and with the proper spirit, that in itself will produce "scientific knowledge." These parodies on science are based upon faulty, over-popularized, interpretations of the growth of substantive scientific knowledge. Although Kuhn's view of the structure of scientific knowledge[5] is not without

its critics, his general proposition that science grows by "fits and starts," by the revolutionary displacement of one dominant paradigm by another is a view which is generally endorsed by many scientists of major stature. In any case, scientific knowledge does not emerge from the sheer piling up of data, no matter how "well-ordered and retrievable" it is.[6]

The belief that the sheer comprehensiveness of one's bibliographic search adds an additional validity or "truth" value to his propositions has led to the establishment in recent years of many specialized "document diffusion" centers. Havelock uses mention of the "4,000" bibliographic items turned up by his study as if this gave special validity to his conclusions. And, to him, the significance of Rogers' bibliographic work[7] lies mainly in the number of documents collected and classified. These are illustrative of a second basic misassumption in the way certain conceptions of the knowledge utilization process have developed. Again, the assumption manifests itself in many ways. Most relevant to the immediate discussion is the implicit assumption that all data are of potentially equal and of inherent value. On this assumption rests the implication, in the dominant "models" of the knowledge utilization process, that if a "piece" of information has been or could be produced, the resulting problem would not be whether it should have been produced or should be permitted to s rvive, but how best to try to get it "utilized." Although attempts have been made from time to time to establish priorities and to order

existing data according to some pattern of potential value or "usability," they are the exception rather than the rule. There is no generally accepted "model" of knowledge utilization which makes provision for "datacide"--i.e., for the routine extermination of useless data.

Nor is there any way to accommodate, in that dominant "model" of the process, the utility of nonutilization--i.e., of intelligent "resistance" to attempts to transfer "knowledge." The dominant "model" of the process is inadequate to the extent it cannot accommodate such empirical facts.

A <u>third</u> fault of most "models" of the knowledge utilization process seems to inhere in the assumption that knowledge is what the data do to the "user," not what the "user" does to the data. Such an assumption implies some rather fundamental misconceptions of how human communication occurs. While raw environmental happenings may impact directly upon animals and preverbal humans, the normal, self-reflexive, symbol-using human as a matter of course deals with his environment from his own and his particular culture's constructions of it. While it is the structure of his languages which initially give form to man's mind, in human communication it is subsequently man's mind which determines <u>how</u> he will take-into-account himself and his world. "Knowledge" does not inhere in data; nor does meaning or significance or relevance. Knowledge is a human achievement. Data can be stored. But it cannot be used as a precise and universal catalyst, as if for immunization. Any one who would "use" the accumulated philosophical or

theoretical statements of any discipline must first enable himself to do so; he must learn how to give form and significance and relevance to the statements of others. No statement of another, whether "scientific" or not, is self-evident. Any person who sees meaning or significance or relevance in another's statement does so as the de facto creator of that "message" which he "gets." No data system can produce, store, process, any "knowledge" which its users cannot create.[8] The dominant "models" of the process of "knowledge" utilization mainly by omission but as well by design, would lead us to believe otherwise.

A fourth major criticism of the dominant ways in which "knowledge" utilization has been conceived of begins with the fact that most "knowledge" utilization theorists have borrowed their basic paradigm from "communications research." Havelock, for example, embroiders on the original Lasswell formula of "Who says what to whom in what channel with what effect." Whatever its variants, this formula is based upon action-reaction, stimulus-response notions of communication, an orientation which is not empirically defensible.

It is not so much that such a conception of the process is wrong as that it obscures more than it reveals. Yet in "communications research," as in research on the "knowledge" utilization process, what is obscured is as pertinent to a full understanding of the process as is what is revealed:

a) For example, in trying to make our "models" look "scientific," we lose sight of two fundamental facts: first, that scientific theories would be indistinguishable from other kinds of poetry were it not for the technological wherewithal by which they can be proven to be "true." Other than theories such as that of the movement of the planets, science can predict only that which it can control. The power of applied scientific ideas is not to be found in the ideas, but in the rigid controls by which they can be demonstrated. For all of our talk of "relativism" and "probabilism," it is purely Newtonian physics which takes the spaceship to the Moon and back. Thus the dominant models of the "knowledge" utilization process are, in effect, control models. What one is led to consider when using them is how to eliminate the uncertain, how to make the "output" of the system more efficient, more predictable, more reliable. We are led to think about reducing the "noise" in the system, of using negative "feedback" to bring the reaction of the "target audience" into consonance with the aim of the system designer or its patron--as in cybernetics.

This is not to fault science. It is to point to the euphemisms by which we approach the scientization of social processes--in this case, "knowledge" utilization. To say "communication" or "knowledge"

utilization when our descriptive models are control models is to confuse ourselves. We tend to explain the process in terms of what the system is for. The model "closes" the system artificially,[9] and this makes the resultant "problem" appear to be that of implementing the closure. These are some ways in which the dominant "model" of the "knowledge" utilization process actually distort our view of that process.

b) Secondly, human communication systems are an integral part of social structure, and evolve with it. Data systems, by contrast, are contrived by persons <u>outside</u> of a given communication system or social organization, and appliquéed upon it. Data systems (often erroneously referred to as "information" systems) may be said to serve the interests and the good of those for whom they were designed, but they typically serve the perceptions, conceptions, and aims of their designers, not of their intended users. To illustrate:

> 1. <u>Within</u> a stable social system, most people not only know what they need to know (or know how to find out); they know that they know what they need to know. Organized concern with the under-utilization of "knowledge" therefore implies an omniscient view --the view from outside. It is the man or

the group or the enterprise concerned about under-utilization of "knowledge" whose vested interests must be ultimately served by the imposed data systems, not those of the "target audience."

2. In a communication system, the participants are responsible to one another. There is a "guarantor."[10] When we create and interject data systems into an ongoing social system in order to change the recipients in some way decided by us, who is the guarantor; i.e., who is now responsible, and for what? Can the data system designer or supplier be held responsible for the actual good or harm done by individual consumption of its products? How can the individual consumer be held responsible if he is considered to have no rational or legitimate choice but to use what is provided? These are central, but knotty questions which are, for the most part, ignored in most approaches to the study of "knowledge" utilization.

c) Thirdly, there is the whole matter of interdependence in communication systems, a fundamental aspect of the phenomenon which is similarly obscured by the dominant "model" of the "communications" process. From a communication point of view, what has been thoroughly demonstrated empirically is that "truth," "belief,"

"value," "relevance," etc., are social products. Whether any "knowledge" produced outside of a particular social system will have any relevance for the members of that social system will depend upon whether or not the producers and the consumers have similar values with respect to what needs to be known, and with respect to how one knows that what he knows is what he needs to know. Education is not a "scientific" discipline, but an "operational" discipline. If the producers of education "knowledge" (i.e., "research" data) value the epistemology of applied science (i.e., "research"), but its potential consumers the epistemology of education (i.e., "experience" and folklore), there will be inevitably a mis-match between the actual process of knowledge utilization within the social system and the structure of the data system designed to facilitate that process. What the dominant "model" of the "knowledge" utilization process implies is that the process is adequately described by describing only those aspects which can be controlled or decided by the system designer. Only by happenstance is this ever sufficient.

What I have been trying to do to this point is to indicate some of the major empirical and metatheoretical inadequacies or faults of the dominant "model" of the

"knowledge" utilization process. What has been done in the past, when such inadequacies were recognized, is to attempt to "patch-up" the model by adding something, subtracting something, using more esoteric terms or terms having more currency (like "feedback," "noise,"), etc. As stated previously, my purpose here is not to salvage that model, for it seems to me not salvageable. It is both inadequate and faulty. Rather, my purpose here is to offer the basic framework of an alternative way of looking at and thinking about "knowledge" utilization in general, and of looking at and thinking about "knowledge" utilization in particular. To move in this direction, it will be necessary to set aside the dominant "model" of the process just criticized, and to reconsider the communication process itself as an empirical base for this alternative conceptual framework.

Human Communication: the Empirical and Theoretical Substrate

I have elsewhere developed in considerable detail most of the major aspects of a philosophy of human communication.[11] I will make no attempt here to review that development systematically, but will rather bring forth what seem to me to be the most pertinent communication concepts and issues in this alternative approach to looking at and thinking about "knowledge" utilization.

One basic fact which any conception of human communication has to accommodate--although few do--is that man is that unique creature who, because he has the capacity to do so,

must conceive of the world in which he exists. Man is, so far as we can determine, the only symbol-using creature on earth. The long and far-reaching implications of this fact begins with this: that both man and his societies, his communicational and his social realities, are artifacts of his own making. The way the world *is* may be the way it was made by God or by nature. But the ways in which men apprehend and deal with the world are of their own making. Most "theories" and "models" of communication assume that the criterion is what *is*--as it is in popularized science. But in human affairs, the criterion may also be what *might* be, what *should* be, or what should *not* be. Thus any "model" of human communication based solely on "negative feedback" misses what is uniquely human about man and his social endeavors. In saying, "This is the way things should be," the "knowledge" utilization expert reinterprets one part of the world and, just as we all do, proceeds to bring that part of the world into consistency with the way in which he has reinterpreted it. But changing the world to fit our conceptions of it or our intentions with respect to it is not "neutral" science. It is social, political, economic man in action. Any conception of human communication which pretends to "scientific" status would, at the outset, have to accommodate the interests of the participants according to what those interests are, not according to what a given "model" says they should be. It must begin with the fact that the meaning or the significance or the utility

which the receiver assigns to any "message" is a property not of the sender or of the "message," but of the receiver. It must not, in application, arbitrarily constrain either the freedoms or the obligations of the humans involved.

Second, most conceptions of the communication process imply (rightly or wrongly) that the standard objective is that of some one (or some group) having its will over another person (or group). But this is only the synchronic view of view of communication. What the "research on research" reveals rather clearly[12] is that there is no necessary correlation between the significance of a given scientist's contribution and his utilization of the formal data systems available to him. Another way of interpreting this is to observe that a data system which is for everybody equally is not equally useful to all of its potential users. The communication issue here is evident: For a man who can and does pursue his own problems, the ultimate source of what is relevant to his work is himself. (One sees this in areas other than science, of course.) He may consult other individuals whom he has identified as personally useful "filters" or "transducers." But the normalization and standardization of data in a common data bank has greatest utility for the scientistic bureaucrat--i.e., for those who believe that a standardized method will catalyze masses of data into "truth" or "knowledge," regardless of the qualities of its user.

All intercommunication does not have synchronization as its objective. As a matter of empirical fact, much

communication serves precisely the opposite function, a fact which our underlying faith in scientism makes extremely difficult to accept. Yet, of all human institutions, the importance of this distinction should be most evident in education.

Learning can be thought of in two ways. At one end of the continuum, what we seek is the synchronization of the learner with "the knowledge," with the teacher, with the learner's society (as in socialization), etc. At the other end, the objective sought is that of enabling and rewarding the learner as an independent learner, whose achievements may increase, but will more than likely decrease, the various synchronies that once existed between him and the rest of his world. At this end of the continuum, the learner brings novelty into the world--whether a poem, a scientific theory, or a political style. This kind of learning is diachronous.

Any "theory" or "model" of communication which cannot accommodate social diachrony through intercommunication--through what is sometimes called, erroneously, "positive feedback"--is not a "model" of human communication but a "model" of a special sort of control process. To accommodate the role of the receiver in this way divides the responsibility for the outcome mutually. Not to accommodate the role of the receiver in this way greatly limits the possibilities for the receiver's own "organic" growth and learning, as well as his responsibility for his own human objectives.

Closely related is the third fact: that the "information" requirements for a task which is both completeable and determinate can be specified; but that the "information" requirements for a task which is neither totally determinate nor totally completeable cannot be specified. Putting the contents of a library on computer tapes is dysfunctional to a browser--and, as the "research on research" shows, "browsing" is more characteristic of creative people than of noncreative people.

The implications are manifold. If a person has nothing in particular to do with his life, then everything is relevant because nothing is. On the other hand, if a man is giving birth to a deep new insight which is novel, then neither he nor anyone else can know in advance what he needs to know in order to achieve the insight. The major conclusions are obvious enough: normalized and standardized "information" patterns and packages can be fully designed only for those users whose tasks are both completeable and determinate--i.e., those who neatly fill a specifiable role in the enterprise machinery, and who are substitutable for each other in these roles--i.e., those who are bureaucrats.

The communication issue here is equally obvious. What does one person need to say to another at any point in time in order to contribute to the organic intellectual growth of that person to his own ends? This cannot be specified; a dialogue is not a precise science but imprecise art, as any true "mentor" knows. What can be specified is what others

need to know in order to move in the direction of my ends or goals for them. It is this which has generally been taken as the paradigm of both communication "models" and "models" of the "knowledge" utilization process. By limiting our understanding of the process to that which can be specified, we gain measurability. What gets lost is the immeasurable --self-determined learning. We infuse our description of the process with our own limitations.

Alexis Carrel put it this way:

> We prefer to study systems that can easily be isolated and approached by simple methods. We generally neglect the more complex. Our mind has a partiality for precise and definitive solutions and for the resulting intellectual security. We have an almost irresistible tendency to select the subjects of our investigations for their technical facility and clearness rather than for their importance.[13]

Whatever the "cause," this describes the way in which we have come to study and to "model" communication. Any "model" of communication which does not give equivalent emphasis to control and novelty, closedness and openness, inevitably favors the one over the other.

Fourth, we need to take into account the phenomenon of dependence in communication systems. To the extent that people are in-formed within and are made dependent upon certain communication systems, they will thereby be less able to deal with other people except in terms of the dominant

values, norms, beliefs, "communicational realities," etc., of those particular communication systems. But they cannot, in turn, even with the best of human controls, "transfer" all that they know to those who are subordinate to them or dependent upon them. In a relatively closed communication system, therefore, each successive generation will "know" less of all that could be "known," and will be less able to "transfer" to the next generation that which should be "known," and so on, through an infinite regression.

Substituting the impersonality of a complex data system for the "human factor" in this process does not obviate it. Most fully to "utilize" an existing data system, whether that data system is comprised of technical devices or of other persons in a common "epistemic community," an individual must make himself dependent upon it. Yet the more dependent he is upon it, the less capable he becomes to "use" it to achieve novel, extraordinary, or evolutionary goals.[14]

If what is expected of people is limited to what is made formally available to them--as in traditional U.S. public education--then the measurement must necessarily be a measurement of the discrepancy between (a) what the data system has to offer and (b), for example, the extent to which it is "used" by them. That is, the measurement must necessarily be a negative one. A positive discrepancy must be dealt with as "error," as it is in much "communications research" and "educational research."

At some point, therefore, it begins to make a great deal

of difference whether the criterion is what is possible for individual humans or what is necessary to continue to justify the particular data system or the particular epistemic community. In the U.S., we have managed to increase the dependence of people on the formal educational enterprise. We posture ourselves, at least, as if the "user" or consumer had no responsibility of his own in that enterprise. The same posture with respect to the design and implementation of data systems for the educational enterprise will have the same kind of consequence--that of increasing the dependence of people upon it. One thinks of the fully automated library of the future, at least as many "information scientists" would have it. The user will need to know exactly what he needs to know in order to be able to "use" it. In itself, that may have its advantages as well as its disadvantages. But the point at issue is that, if there are no viable alternatives for the individual, then he becomes dependent upon what is "officially" made available to him. In fact, if the system is to be made fully efficient--an arbitrary criterion held by many for such data systems--then the "user" must be made a functional appendage of it.

Finally, in the context of the preceding considerations, we need to have some basis for deciding what are and what are not "communication problems." Without some basis for doing so, we are likely to confuse communication with control, the system criteria at one level with the system criteria at

another level, etc.

In another paper,[15] I suggested that it might be useful to think of the consequences of any human communication situation in terms of four broad categories:

1. Those outcomes that are <u>impossible</u>, given the time, the place, the people involved, the lack of mutuality between the communicator's and the recipient's intentions, wants, needs, capabilities, etc. What I wanted to point out was that there are those situations in which no immediate strategy or tactic will produce the desired result. Two examples may suffice. It is not possible, in this sense, to "communicate" another person on-the-spot into having less intelligence than he has. (In a controlled environment, one may be able to do so, but not then and there.) Or, if what a reader is looking for (or what a listener is listening for) is not "there" in the speaker or the writer, it cannot be gotten. <u>Given</u> the intentions of the participants, and <u>given</u> the situation, there are certain outcomes which are impossible to be had communicatively--at that time, in that place, under those circumstances, etc.

2. Those outcomes which are mainly <u>serendipitous</u>. By this I meant only that the specific consequences of most communication situations are the way they are simply because they happened to turn out that way. In most human affairs, our hindsight is much better than our foresight. What a truly great teacher bets on is serendipity: since there is no way of knowing exactly what needs to be said at any point in time

to enhance the student's personal growth, he depends upon the "happy accident." For if the student is to understand something in his own way, then he must be permitted to understand that something in the "wrong" way (if we assume, as we do, that the "right" way of understanding something is the teacher's way or the "knowledge-producer's" way or the normative or modal way). If "knowledge" is to be "utilized," and if knowledge is not a commodity but a personal achievement, are we to define utilization as the "right" way of using that "knowledge," or as any way of "using" it or not using it?

3. Those outcomes that are possible. This is the smallest range in Fig. 1. What I wanted to draw attention to

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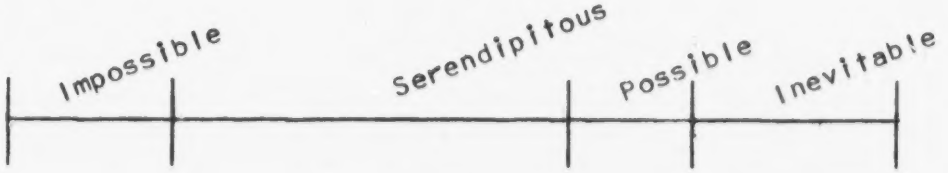
Fig. 1



Categories of Communication Situation Consequences

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here are those situations in which some immediate strategic maneuver, or some tactical variation, will make a difference. If someone wants to understand what I am saying, then the way

in which I say it may make some difference. If an individual comes to a data system looking for something in particular which is there, then the way in which that system functions, the way in which the data are presented, etc., may make a difference. This is where all communication problems and opportunities--in the conventional sense--lie.

4. Those outcomes which are essentially inevitable. Just as there are certain outcomes which are impossible, there are those which, because of time, place, the people involved, the degree of mutuality involved, etc., are more or less inevitable. If any engineer, for example, is looking in the right book for a "piece" of information which he has seen before and is capable of recognizing and understanding, then it makes little difference how that "information" is presented. If there is a severe enough penalty for not doing so, and if "Yes, sir!" is the only permissible reply to an order from a superior in an authoritative hierarchy, then it makes little difference how or when or why the order is given.

The central point, however, is that we often mislabel as "communication problems" those which are not, and that we fail to distinguish the level or the nature of those which we do properly label as "communication problems."

Toward Some Communication Strategies for Optimizing the Educational Enterprise

In the preceding discussion, I have been leading toward some basic recommendations. While I have presented no more than a broad overview of the central issues involved--with respect to

the role of communication in the educational enterprise--this may be sufficient for presenting these recommendations.

System Criteria

As is true of all systems, the overriding question for the educational enterprise has to do with system criteria--that is, with what the system is for, and with what its acknowledged criteria are to be.

Let us assume, for the moment, that the educational enterprise is a single, homogeneous system (which it is not), and that the sole problem with which we are faced is that of enhancing teacher performance through better "diffusion" and "utilization" "research" on and experimentation with ideas, technics, methods, etc., of teaching, classroom or school organization, curriculums, etc. If we were ever to develop an orderly, systematic, and rational way of looking at the role of communication in this problem, we would have to begin not with the "How?" but with the "Whither?" question. That is, we would have to begin with a decision about what the system criteria are to be.

They would have to evolve out of the way in which we "field" the fundamental question: is the goal or aim to be that of optimizing in some way the "utilization" of all of the "knowledge" extant, or that of optimizing in some way the competencies of teachers (and others) as more or less autonomous inquiring systems, or both? This initial decision, whether made by design or default, leads to significantly different paths of implementation.

At the strategic level, if the question is answered in the one way, the central issue becomes one of control. Getting more people to use more of the available "knowledge" in measurable and predictable ways is not first and last a communication problem, but a problem of control. Attempts to achieve this goal or aim "through communication" will be at best largely inefficient and unproductive.[16] Rather, what would be necessary would be major changes in the authority, power, and normative structures of the larger enterprise. If, for example, teachers were paid on the basis of their "use" of existing educational "research" data, noticeable and huge gains in "utilization" would be realized almost immediately. Or, if it could be made normative for teachers to "use" research data (rather than "experience") as their epistemic base, great gains in "utilization" would likely be achieved. Or, suppose that it were possible to alter the situation in such a way that "knowledge-producers" were permitted to produce only that "knowledge" which was requested by the "utilizers." This would constitute a radical change in the existing structure. This is not to imply that any of these changes is to be had eventually except in and through "communication." But if a fixed amount of money and effort were put into changing the reward system rather than into trying to get teachers to "use" what is available, these would clearly be different aims.

If, however, the question is answered in the other way, then the central issue would not be one of control, and one would have to seek out or develop non-control-"models" of the

whole process. He would, in fact, need a positive- rather than a negative-feedback model of the process. If the aim were that of continuously enhancing people (in this case, teachers) as more or less autonomous inquiring systems, "knowledge" and "utilization" and the concept of communication itself would have to be fully redefined. What constitutes "knowledge" in a control (closed) system is specifiable by the controller.[17] What constitutes "knowledge" in a growth (open) system is specifiable in advance neither by the "utilizer" nor by the "producer" nor by the designer or controller of the system. "Utilization" in a closed (control) system can be specified in terms of instances of use--a quantitative measure. "Utilization" in a growth (open) system can be measured only indirectly, and then only qualitatively. As far as communication is concerned, we would be forced to think of such communication patterns as primarily diachronic, not as synchronic. "Optimum" use would therefore have to be conceived of as an individual matter. As indicated before, the "research on research" has shown rather unequivocally that there is somewhat of an inverse correlation between the scientific significance of the user and his use of the formal data systems available to him. Is this <u>optimum</u> "utilization," or not?

Whether or not one can systematically deal with the communication problems (and opportunities) involved depends first of all, however, on how one makes this first decision: Shall the primary aim of the system be to get the available "knowledge" "transferred," or shall it be to continuously enable

the users as increasingly autonomous information-seekers?

"Communication" Problems

Getting organized to deal strategically with the specifically communication phenomena involved depends, secondly, upon how competent one is at determining what are, and what are not, "communication" problems (and opportunities) and, having determined that, whether the problem (or opportunity) is a strategic or a tactical one.

For example, James Conant once said that only about 15% of children were capable of learning through books and in the classroom setting. Most of the available time, effort, and money therefore has to be spent on those 85% who are not capable of doing so. As a corollary, if only 15% of all teachers are capable of changing their "practice" basically except through experience or direct reports of experience, is this a "communication" problem, or is it some other kind of problem? If certain kinds of teachers are not "utilizing" those formal data systems designed for their use, is this a communication problem or not? If certain other kinds of teachers are, is this a problem or not? If it is, is it a "communication" problem or not?

A communication problem is one in which the "problematicalness" has to do mainly with the communication competencies of the participants and, in that context, with the adequacy-inadequacy of the media or technics employed. All other problems are better viewed as problems of system structure, of power or authority relations, of economics, of lack of

mutuality, of incongruent epistemologies, etc. That human organizations or that people are generally not innovative is not, in this view, a comunication problem. That the underlying epistemology of teaching as an occupation is not "research" but "folklore" is not an immediate communication problem. That teachers do not in general "utilize" the "knowledge" that is formally made available to them from someone or some agency outside is not only a communication problem. However, the fact, for example, that those who produce this "knowledge" do not produce what teachers want and ask for may ultimately be a communication problem. Those who would concern themselves with the communication aspects of "knowledge utilization" in the educational enterprise must first have some empirically-grounded basis for determining what are and what are not communication problems. Conventional "models" of the communication process do not provide this basis. The problem which we address ourselves to will be the one we have named, not the problem. If we say that the problem is one of "knowledge utilization," then this is the way we address the situation. If we were to say that the problem was that the "producers" simply do not produce the "knowledge" that the "consumers" want, and ask for, then we would address ourselves to the situation quite differently. If we are to address ourselves to those problems which are uniquely communication problems, we will have to have some way of distinguishing what are from what are not communication problems. The analytic scheme presented here has been found useful and widely-applicable.

A tactical communication problem is one in which the media, the form, the time or the place, the technics, etc., are the main variables. In some situations, a different medium might educe a different response. A different way of "packaging" the data could educe a different response --or set of responses. "Distribution" at a different time or a different place, or in a different form, might educe a different reaction or provoke a different "use." This is the simplest level of communication problems, and the level at which we traditionally have thought about communication problems. However, few can claim a creditable record even at this level--primarily because tactical communication "solutions" have been applied to problems that were not essentially communication problems, and because of the fuzziness which our conventional "models" of communication bring to the way we look at and think about such situations, as described earlier in this paper.

A strategic communication problem is one in which the communication competencies of the "knowledge-producer," the intended "knowledge-consumer," or the system designer are in a state of mis-match--i.e., are "out-of-phase." For example, at that point at which Einstein began working on his own problem, of what direct and systematic use was the mass of literature based in another conception of time and space to him? If the intended "consumer" is not capable of understanding (of taking-into-account) what is said or written by the "knowledge-producer," but which is, by his own assessment, relevant, this is a strategic communication problem.

(To assume that this is a tactical communication problem, as has been done, results in producing a "message" which the intended consumer can understand, but which is no longer "true." To describe nuclear fission to a student of nuclear physics by filming the action of ping-pong balls on a field of mousetraps may have metaphorical value, but what is relevant to the nuclear physicist are the theories by which the phenomenon is accounted for, not some saccharine translation of the phenomenon into something else whose sole criterion is that it be "understandable to everyone.")

There are thus two levels at which a strategic decision must be made: first, that of determining whether a given problem is a communication problem or not; and second, that of determining whether a given communication problem is a tactical or a strategic one.

Communication and Education

Third, it will be useful to stop treating education as if it were a unidimensional process, and communication as if it were a unidimensional "cure."

If one wants to enable himself to deal strategically with the communication problems (and opportunities) involved in the educational enterprise, it will be necessary to conceive of the educational enterprise as comprised of at least three levels of "knowledge" production-distribution-utilization systems: viz.

a. There are those "knowledge" production-distribution-utilization systems which are essentially, "closed."

For example, if there are certain "knowledges" which all of the intended consumers have to know, or have a recognized need to know, and which are in themselves relatively knowable and unequivocal, this presents one kind of communication problem. Either the "knowledge" producers are not competent to take-into-account what is wanted or needed or the "knowledge" processors are not competent to deploy the adequate media, forms, etc., or the "knowledge" utilizers are not competent to take-into-account that which is available to them.

b. However, there are those "knowledge" production-distribution-utilization systems which are relatively less "closed." Data which are potentially useful to no more than 10% of the users of a particular system simply have less utility. It makes little sense to try harder to "transfer" that data which has limited utility. Where the utilization standard in the case of the essentially closed system is maximization, the standard here would be optimization, and what is optimum would naturally vary from datum to datum, and from user to user. Communication techniques cannot be counted upon to achieve the impossible or the unfeasible. They must be logically consistent with the facts. In a relatively "closed" system, all data may be "equal." But the more "open" the

system, the less equal the data. A "closed" system vests all strategic decisions in the controller. The more "open" the system, the more decentralized the strategic decisions. Analytically, these different situations present different problems, and the nature of the specifically communication problems involved changes as the system moves along the continuum from relatively more "closed" to relatively more "open."

c. Then there are those "knowledge" production-distribution-utilization systems which are by their very nature essentially "open." If no more than two persons on earth "know" something, and if no more than five other persons on earth are at any point in time capable of "utilizing" this "knowledge," what is the cost effectiveness of bringing that "knowledge" into a formal data system, repackaging it, and distributing it to thousands? While it might be possible to translate that "knowledge" into a form which would be understandable by those thousands, what utility other than its entertainment value would it have for them?

Clearly, these three levels of "knowledge" production-distribution-utilization systems have different implications for the analyst-strategist, and are therefore fundamental to this alternative way of

looking at and thinking about the communication aspects of "knowledge" utilization in the educational enterprise.

Communication and "Knowledge" Utilization

Fourth, as suggested above, "utilization" is not a unidimensional phenomenon. Given that different means (pieces of "information") may lead to the same ends ("utilization"), and that the same means may lead to different ends in dynamic, complex systems, it does not seem unreasonable to accept the fact that different people may acquire and utilize the same "knowledge" for different purposes, and may acquire and utilize different "knowledge" for the same or similar purposes.

The venerable "communications research" criterion of "effectiveness" simply will not do. Nor is whether or not people have access to and "use" a formal data system a sufficient criterion. What is acceptable as a method of measuring "utilization" should not be permitted to define the nature of the problem or to dictate the terms in which the phenomenon is understood.

Some teachers, for example, may "utilize" the formal "educational research" data systems available to them because they truly want to improve their "practice." Others, however, may "utilize" them because they want to appear to others to be "scientific," but are not the least interested in improving their "practice." Still others may search out

and acquire new "knowledge" simply because it makes them feel superior in the presence of colleagues who have not done so. For still others, it may be the only means they have of avoiding a feeling of insecurity and uncertainty. And so on.

The same observations could be made of those who produce "knowledge," and of those who process it. There is no single motive guiding similar behavior, nor can one safely assume that different behaviors are not guided by the same motives.

There is as well sufficient empirical evidence that various forms and degrees of excommunication may be a precondition of innovation, novelty, risk-taking, etc. The myth that communication is good, more communication is better, and "perfect" communication therefore ideal for all human endeavors is just that--a myth. Resistance, disunderstanding, misutilization: these may all be at one time or another functional to the health and the viability of human enterprises.

Any systematic approach to the communication problems (and opportunities) involved in the process of "knowledge utilization" in the education enterprise would have to accommodate these empirical facts. For example, the human intercommunication which supports change, novelty, etc., implies a functional communication system. And every

functional communication system is anchored in communicational realities--not in amassed research data--whether in science or in education. Thus, for some purposes, the most appropriate measure of "utilization" might well be the extent to which and the manner in which the substance of a formal data system is talked about by its potential users, not the extent to which specific items are "adopted."

In Summary

What I have attempted to do in this paper is to explore the concepts of "knowledge utilization" and the educational enterprise from a communication point of view, and to outline some basic concepts for an alternative way of looking at and thinking about "knowledge utilization" in education based upon a nontraditonal conception of the processes of human communication and intercommunication. The typical "model" of the communication process as it is represented in most of the "knowledge utilization" literature is criticized both for what it fails to accommodate, and for the fuzziness with which it forces us to approach certain fundamental philosophical questions and certain questions of strategy. Where appropriate, I have suggested some of the operational implications of the theoretical constructs on which this alternative approach to looking at and thinking about knowledge utilization in education is based.

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Project: NCEC Knowledge Utilization Study

Research Memorandum #6:

"A Review of the Literature Pertaining to Teachers' Communicative Characteristics: A Description of the 'Target Audience'"

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INTRODUCTION

This review of the literature seeks to describe the communication patterns of teachers. Two major questions are explored: First, how can the "typical" teacher* be described 1) as a user and/or non-user, and 2) as a producer and/or non-producer of educational research? And second, how (from a teacher's point of view) do other human elements (e.g., administrators and peers) within the teacher's communicational purview impinge supportively or non-supportively (if at all) on the teacher's patterns of use/non-use and production/non-production of educational research?

Since research data dealing specifically with educational research use is rather limited, studies pertaining to the occupational communication habits of teachers in general will also be reviewed in light of their possible and probable influence on utilization of formal educational research data.

Before delineating the notions of use, non-use, educational research, and so forth, it is useful to note the importance of these questions in attempting to reconceptualize "knowledge" utilization in education.

Historically, the nature of the input data has been the chief factor in determining the design of most "information" systems intended to "promote" the utilization and dissemination of "knowledge." Rarely has adequate consideration been given to the "information" (data) "getting" or "giving" patterns actually

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*A chief assumption inherent in the above questions is the idea that there is actually such a creature as the "typical" teacher. While it is realized that no individual teacher is precisely "like" any other, it should also be realized that teachers as a group may exhibit communication patterns through their professional role, which are distinguishable (or not) from those persons in other professional roles, such as doctors, physicists, and the like. Thus follows the idea of the "typical" teacher.

practiced by the supposed or potential users of the system. Thus, the design of "information" systems has boosted the economy through creating the need for personnel and technology to "persuade" people to use, and to teach people how to use, the systems designed for "them."

It has been observed, however, that "a person's habits of thought and action. . .are modifiable only at great effort, and usually then only in very small steps or stages" (Thayer, 1968, 200). Thus, if one is seeking a reconceptualization of "knowledge" utilization in education, it would seem important to take into account the communication patterns of the persons ultimately responsible for putting the knowledge to use.

For the purpose of describing the communication patterns of teachers, literature was reviewed concerning the background characteristics, attitudes, training, and personality traits of teachers. Studies of teachers' colleagueship and reasons for entering and leaving teaching were also examined, as well as investigations focusing on their organizational and social environs. Finally, researches into the specific "information" use patterns of teachers was inspected. While much of the data reviewed resulted from formal research, some anecdotal and "observational" and informal interview accounts were also studied.

Prior to relating the literature reviewed to the questions posed above, the concepts inherent in those questions will be delineated, a framework for approaching the questions described, and a brief review of the demographics of teachers as an occupational group offered.

What is an "information communication pattern?" To answer this, one must first examine what he wants to mean by "communication pattern." If human communication is viewed as the process of someone taking something-into-account to some end, then a communication pattern can be defined in terms of the competencies, strategic and tactical, that a person employs in going about the basic communica-

tion processes of generating, disseminating, acquiring or processing data (Thayer, 1968, 272). Different persons have differing ways of going about "communicating" (i.e., different systems of communication) and thus manifest different patterns of communication through their behavior. In looking at the communication patterns of teachers we shall focus upon their communication competencies in terms of the strategies and tactics employed in taking data into account.

Communication might also be called the "in-forming" of data. Information for an individual is the product of his involvement in communication. By "information," we want to refer (as much as possible) to research data that has been the product of formal research effort. Although it can be argued that, in a broad sense, teaching is research and research is teaching (Hamilton, 1969; Hansen, 1956), our concern is with research data resulting from systematic studies of education problems and questions.

Most educational research can be classified according to one (or more) of three categories of application: 1) teaching strategies; 2) content of subject matter to be taught; and 3) technology and materials. Although it will not be completely ignored, we are not so much concerned with the nature of the research data which teachers "use," as with how (when, where, etc.) they talk about (i.e., "use") it. Thus, we focus on what might be termed the "occupational communication" of teachers. Not only what do teachers talk to each other about, what do they read and the like, but also what influences (environmental, personal) impinge on these processes.

As the focus of this study is on the communicational aspects of teachers' use of educational research data, "use" is defined as the taking-into-account of that data. What characterizes teachers' "giving" and/or "getting" of research data? Thus, a "non-user" is one who, for whatever reason(s), does not or cannot "in-form" such data.

A teacher "producer" of research is one who uses systematic observation and "data collection" in hypothesis testing and/or problem-solving. By systematic we mean that the teacher-producer's observation or "data collection" follows formal research procedures and is capable of replication.

A factor to which we will attend is the behavior of school administrators with regard to teachers who are users/non-users and/or producers/non-producers of educational research data. Thus, administrators will be described as either supportive or non-supportive of teacher communication behavior. As they influence teacher information communication patterns, other factors such as parents, students, organization of the school, etc., will be described. However, an in-depth review of these influences is outside the scope and purpose of this review.

By way of presentation the writer will discuss teacher "non-use" and "use" of educational research in separate sections. Because of the constraints inherent in the process of "producing" research data, and because the finding implicit in the literature is that the overwhelming majority of teachers seldom, if ever, engage in such activity, it will be assumed that characteristics and patterns describing non-users of research data are descriptive of non-producers as well. A third section will review in some detail the sole study of teachers as researchers that this writer located in the extant literature.

The levels of analysis suggested by Thayer (1968) will provide a general framework for presentation of the three sections describing teachers, non-users, and users. Briefly, these levels can be summarized thusly: 1) At the <u>intrapersonal</u> level, those processes of communication (particularly the inputting and processing of "information") which occur "in" an individual are analyzed. Since communication always occurs <u>in</u> the individual, this level is always involved when analyzing communication at any other level. 2) At the <u>interpersonal</u> level, systems of communication involving more than one person are analyzed as

to how individuals affect each other in the communication process. 3) The third level of analysis, the organizational, views the organization as an "information-decision system" having characteristics which affect overall processes of communication (Thayer, 1968, 30,31).

BACKGROUND REVIEW

> Teachers are at once influential and servile, scholars and chumps, leaders and followers, anxious and secure. The roles played by teachers are various and often conflicting. The status ascribed to them is both high and low. Teachers are subject to stereotype, yet each has individual characteristics. These social dimensions show the dynamic nature of the occupation and the resulting difficulty in making generalizations about it...(Nelson and Besag, 1970, 178).

Some general characteristics of teachers that most likely impinge upon and constrain the communicative behavior of teachers (e.g., the "nature" of teaching and teachers, the relation of sex to role expectation and performance among teachers, reasons people leave teaching, socialization of teachers into the school system, peer interaction among teachers, the teacher in relation to the principal and school setting, and teacher "autonomy") are discussed below.

The focus of this review is on classroom teachers in public elementary and secondary schools in the United States. As of fall 1970, there were approximately 2,275,000 classroom teachers in this country (Simon, 1970, 6). Slightly over ten percent of them taught in non-public schools. Fifty-one and one-half percent were teaching in elementary schools. In 1969 there were approximately 45.6 million students in United States' schools ("Progress...," 1971, 44).

A number of researchers note "important differences between elementary and secondary school teachers' backgrounds, values and styles" (Chesler and Barakat, 1967b, 96; LeFevre, 1967, 437; Ryans, 1960, 23). Men and women in teaching have

also been found to differ in a number of ways as will be reported below. National Education Association figures for 1965-1966 report that 14.8 percent of all elementary and 53.6 percent of all secondary school teachers are men (Dreeben, 1970, 58). Another writer has observed that these ratios have remained fairly constant for the past ten years (Brenton, 1970, 122). Dreeben reports that the median age of men teachers is 33.6 years, while that of women in the field is 45.5 years (1970, 165). Government figures for 1965-1966 report that the average age difference between men and women teachers is five and a half years, with the average age of men at 35 (Stanton, 1970, 40).

Teachers and Teaching

Brenton (1970, 40) cites a 1950 Yale University doctoral dissertation that describes the general personality characteristics of teachers thus:

> Teachers. . .are not strongly motivated to enter the occupation or to advance in it. They are at least vaguely dissatisfied with their work, inclined toward the status quo, disinclined toward change. They tend to be cooperative and helpful, and adept at school work. They are more followers than leaders, more disposed to political conservatism than liberalism, more apt to grow authoritarian with time than vice versa. Teachers think of teachers as being different--which renders them quite vulnerable to stereotyping. They lack aggression but have a strong sense of service....

Both Brenton's and this writer's reviews of the literature on teachers indicate that this description is still generally applicable to persons in teaching in 1971.

In the review of the literature on teacher characteristics by LeFevre (1967, 437), a study by Gillis is reported in which 700 teacher trainees were compared with the normative college population on 30 "needs" scales:

> Although trainees had a greater need for cognitive organization, they had less interest in intellectual analysis, discussion, objectivity, problem solving, and abstraction. Teachers' dependency needs were greater on eight of the nine scales. They expressed more need for close, mutually supportive relationships, deference, denial of hostility, and for order and attention to detail.

Interviewing and observing fifty "superior" (as judged by their administrators) elementary teachers in suburban Chicago schools, Jackson (1968, 150) observed that the interviewees seemed "to lean toward a tender-minded world view." This tendency toward a tender-minded or romantic outlook was also noted in Ryans' comprehensive study of teacher characteristics (1960).

Let us examine how these kinds of personality characteristics relate to the process of teaching. In a recent national survey, 87 per cent of a sample of secondary school teachers disagreed with the statement: "Teaching is more of an intellectual strain than an emotional one" (Sabine, 1971a, 115). Jackson noted that the elementary school teacher "typically engages in 200 or 300 interpersonal interchanges every hour of her working day" (1968, 149). What, then, is the "nature" of teaching behavior, of the occupation of teacher?

Numerous writers and researchers have observed that teaching (and teaching practices) is largely based on lore and intuition rather than "rational thinking" (Jackson, 1968; Dreeben, 1970; Ornstein, 1970). Dreeben notes that "there is not a single area included [in teaching] which has well-known and established modes of proceeding such that means, outcomes, and appropriate conditions can be related systematically" (1970, 87).

Jackson found that the elementary teachers he interviewed often stated that their classroom behavior was based "more on impulse and feeling than on reflection and thought.... They were more likely to defend themselves by pointing out that a particular course of action felt like the right thing to do, rather than by claiming that they knew it to be right" (1968, 144).

There are those, however, who believe that teaching and teachers are very rational in character (e.g., many teacher educators, most "information scientists"). Hansen states:

> Whether aware of it or not, the teacher is daily engaged in a

> kind of classroom research.... He is continually formulating tentative hypotheses based upon observation and examination, then testing these hypotheses by means of the collection and inspection of more complete data, arriving at conclusions which determine a course of action that validates or invalidates the origional hypotheses (1956, 430).

Sieber (1971) also offers an interesting profile of the teacher as "rational man." Jackson, however, states that "manifestations of orderly cognition are not very salient in the teacher's behavior as he flits back and forth from one student to another and from one activity to the next" (1968, 151).

More likely there is a balance of the rational and non-rational in teachers' classroom behavior. As has been pointed out, the impulses and hunches of most teachers have been tempered by years of experience. "Thus, the basis of their action might be much more rational than their self-reports would lead us to believe" (Jackson, 1968, 144).

Stinnett notes that the "charge is made that one-fifth of the average teacher's time is spent on the humdrum activities assigned by 'The System,'" such as absentee reports, writing hall passes, and the like (1970, 173). Between these and the classroom interactions demanded by 28 students, most teachers find little time for "information-seeking" or other forms of inquiry.

Sex Differences

Several studies note differences between men and women teachers in their reasons and motivations for teaching, their orientations (or styles) toward teaching, and their satisfaction with teaching as an occupation. Brenton notes that:

> ...men teachers show more of a need to achieve. They show more need to overcome humiliation and failure, more need for personal power, more aggression and hostility, and more of an urge to manipulate others. Women teachers are more self-abasing, more willing to be submissive, more narcissistic and erotic. They have more of a need to be friendly, to love and be loved.

> These comparisons would seem to reflect the differences generally found between men and women in American culture (1970, 41).

Another researcher has found that men teachers have stronger intellectual needs, while women teachers show greater dependency needs (LeFevre, 1967, 437).

A study conducted by Simpson measured the effects of sex and sex role expectations of over 9600 public school teachers in the South. He found that:

> Women teachers. . .are characterized by compliant predispositions, a desire for friendly work atmospheres, an orientation to humanitarian service rather than to technical expertise, and a lack of colleague reference group and collegial authority orientations (1969, xiv).

In his attempt to discover people's motives for selecting teaching as an occupation, Lang found that women elementary teachers were largely motivated by the idea of the teacher role of mother-substitute, while women secondary teachers viewed teaching as an opportunity to direct the learning of others, seek knowledge themselves, and "enjoy the companionship of intellectually stimulating fellow teachers" (1960, 103).

Kelsall and Kelsall* (1969, 130) remarked that one of the sharpest differences between the sexes found in the Ryans study (1960) was the tendency for men teachers to be more emotionally stable than women teachers. This idea, however, seems contradictory with more recent findings on teacher satisfaction.

Wilson and Goethals (1960, 294) found no significant relationship between sex and values except in how teachers want to be rewarded in their teaching role: "...females seem to feel that personal satisfaction is reward enough, but males want more tangible reward, such as increased salary or praise and public recognition."

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*When citing works published in England, the writer reports only data from studies of American teachers.

Rudd and Wiseman are reported as finding that men elementary teachers are more dissatisfied than other teachers (Morrison and McIntyre, 1970, 90). In a survey of 7200 beginning teachers, Mason, Dressel, and Bain found "...on every one of the 22 questionnaire items dealing with the teacher's job satisfaction, the percentage of women replying 'very satisfied' was higher than for men.... Because women are less concerned with factors intrinsic to their work, it may be that they make fewer demands on their jobs and thus are more easily satisfied" (1963, 283).

Several of the above differences may be accounted for to some degree due to the fact that men form a majority among secondary teachers and the finding that men are generally more dissatisfied than women in teaching. One study, for example, reported that elementary teachers had consistently smaller "need deficiencies" than secondary teachers in regard to professional roles (Trusty and Sergiovanni, 1966, 175). Others have noted that elementary teachers tend to be more person-oriented and more permissive, while secondary teachers are more subject-oriented and traditional (Ryans in Kelsall and Kelsall, 1969, 130; LeFevre, 1967, 437).

The differences indicated earlier between men and women and elementary and secondary teachers take on more significance when the idea of teaching as a means of social mobility is considered. A number of writers and researchers have observed that teaching is a "middle-class" occupation (Brenton, 1970; Trachtenburg, 1969; Simpson, 1969, Nelson and Besag, 1970).* Research indicates that men entering teaching tend to come largely from the upper lower classes,

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*For a different opinion see Dreeben (1970, 159). He feels that there is only "modest support" for the notion that teaching currently represents an avenue for social mobility.

while most women entering the field have their background in the lower middle or middle class. Although they point out that conclusive data are not available, Nelson and Besag (1970, 173) hypothesize that:

> ...the higher social-class entrants perceive teaching as a social service, while the male entrants view it as a means of upward mobility. The effect of both viewpoints is a continuance of conformist patterns to a middle-class morality. The female teachers, drawn from classes which value the status quo, are not likely to make drastic alterations; and male teachers, who desire the mobility afforded by teaching, will not react against the system they anticipate joining. Dramatic breakthroughs in education... are not likely to occur under such circumstances.

Many men enter teaching with the idea of staying only a few years and then seeking an administrative position. Perhaps one indicator of this tendency is the finding that "lack of self-esteem received from their school position represents the largest source of dissatisfaction for high school and elementary teachers" (Trusty and Sergiovanni, 1966, 176).

The findings from Simpson's study of Southern teachers suggest that the professional role perceptions and expectations of most women teachers are perhaps helpful (almost "reinforcing") to men in their desires to enter administrative roles. He ascertained that:

> ...the occupation of teaching as a whole...[is] considered more suitable for women than for men by the teachers themselves, whereas, they consider administrative work and some secondary teaching fields more appropriate for men.... Not only men, but many women, seem to feel that in work situations involving both sexes, the man should be the boss. Most principals are men. As a result, women teachers are generally disinclined to seek autonomy or to look to their colleagues rather than to their superiors for normative guidance and approval (1969, xiv, 1-10).

Teacher Turnover

Another characteristic of teaching as an occupation that contributes to the "nature" of teachers' interactions is the high rate of teacher turnover. Chandler (1971, 195-7), reporting "estimated occupational distributions of B.A.

degree graduates in education in a typical year," specifies that 67.5 per cent of the graduates are in teaching. Brenton cites two Ohio State University researchers as finding that of college graduates satisfying state certification requirements, less than fifty per cent were still in teaching two years after their graduation, and ten years later only ten to twelve per cent were still in teaching. The discrepancy between these two reports may lie in the fact that most secondary school teachers do not hold degrees in education but in the subject they teach, although they are likely to hold certification.

Mason, Dressel, and Bain studied reasons and potential reasons among their sample of beginning teachers for leaving teaching. Men's responses differed significantly from the women's, with men leaving for chiefly intrinsic reasons such as salary, social status of teaching, working conditions, and so forth, and with women leaving basically for reasons extrinsic to teaching itself, such as marriage, pregnancy, and spouse's change in occupational situation (1963, 283).

What are the implications of the teacher dropout problem for teaching? Dreeben offers a hint in stating that "large occupations, simply to fill available openings, have to fish deeper in the intellectual pool to fill its [sic] positions" (1970, 163). This would seem especially true of education, since research indicates that those who leave teaching are usually the persons who are "better" teachers (Brenton, 1970, 37) and who have better academic credentials (Stinnett, 1970, 2; LeFevre, 1967, 316). Teachers themselves would seem to recognize this as a problem, with 88 per cent of Sabine's sample agreeing that "there should be better screening of students admitted to teacher training programs in college" (1971a, 126).*

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*For further discussion of the teacher dropout problem, see chapter six in Dreeben (1970), and Stinnett (1970).

Teacher Peer Interaction

Research pertaining to the interpersonal interactions among teachers is reviewed below. Morrison and McIntyre (1970, 89) note that little is known about peer relationships among teachers and about human relations among school staff, particularly regarding the creation of social groups, communication channels, forces of group pressure, and interpersonal conflict. It is this writer's observation that much of the work attempted in these areas has produced, at best, only vague results. The approaches most often used fail to regard peer interaction as a complete system and instead focus on one particular aspect such as the "lines" of communication or the quantity and/or frequency of "message flow" or "contact." Nevertheless, the reader may find several of these studies useful to some degree.

Wilson and Goethals (1969, 296) found that "the liberal arts trained want informal interaction among teachers," while "the education trained desire minimum interaction among teachers." They also ascertained that those teachers with less experience wanted more opportunities for within school interaction with their peers than did teachers with more experience. They point out that experience is a function of selection and that:

> ...the proper interpretation of this finding may be not that teachers desire less interaction with more experience, but that those teachers who want considerable interaction with their peers and do not find opportunities for it may leave the occupation (1969, 297).

Concerning the formation of social groups among teachers, Morrison and McIntyre state that teachers are at least in part influenced by the "departmental organization of teaching" and "staff-room accomodation" (1970, 89). Studying "communication contacts"* among school staff member, Charters attributes much of

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*For this investigation, Charters states: "...communication was conceived as an event linking pairs of staff members" (1969, 33, 34).

the communication patterning within a school to influence of the physical and organizational structure of the school (1969, 33). Charters also found that teachers (and administrators) in small schools were "in contact" with more of their peers than teachers in large schools and that "their contacts were exercised with considerable greater frequency," (1969, 22). He also asserts that a "hint that communication contacts were greater in elementary then [sic] in secondary schools of roughly the same size," (1969, 20).

Socialization Among Teachers

The role expectations of teachers within a school are significant influences on most teacher behaviors. It appears that teacher norms are a strong socializing force in the greatest number of schools. Nelson and Besag state that "teachers who veer widely from the norms are suspect and are treated with aloofness, disdain, ostracism, or other forms of social punishment by their fellow teachers" (1970, 175). Although varying somewhat, professional role expectations, according to Nelson and Besag, typically include "such behaviors as apportioning equitable homework assignments, carrying papers, attending committee meetings, being punctual in meeting a class, joining or not joining a teacher organization, maintaining a level of secrecy about teaching practices, and being aware of specific local issues" (1970, 1976).

A number of researchers have pointed out that teachers tend to value conformity. Brodbelt observed that "an unfortunate result of the middle-class aspirations of teachers and their classroom practices is that they view conformity as a virtue" (1967, 155). Nelson and Besag found that "conformity in matters of dress, speech, and manner are common, especially in the lower school levels" (1970, 175).

The socializing effect of teacher role expectations and group norms is felt

most often by beginning teachers who enter the schools with ideas about "innovating" and "changing" practices (Fetton, 1971, 368; Brenton, 1970, 111; Morrison and McIntyre, 1970, 90, 91; Chesler and Fox, 1967c, 26; Helser, et al, 1969, 42). The tendency to conforming behavior, however, is generally characteristic of teachers (Morrison and McIntyre, 1970, 91). Thus it is doubtful that meeting the role expectations of one's peers is that widespread a problem among new teachers. For example, a recent Instructor survey of teachers under 30 years old in West Virginia reported that 62 per cent of them "wanted most to fit successfully into present programs...." ("Teachers...," 1969, 31).

Closely related to role expectancies and norms among teachers is the social structure of the school. Investigating this phenomenon, Chesler (1967, 120) found significant differences between the way elementary and secondary teachers perceived the social groupings within their schools. Elementary school teachers tended to view their fellow staff members as forming one fairly close group or as being diverse and without particular group ties. Secondary teachers, on the other hand, tended to view their school staff as comprised of two or more subgroups. "Secondary teachers systematically placed themselves in the center or on the periphery of large groups (71%) more often than did elementary school teachers (55%)" (1967, 121). Other research indicates that serving on committees together and traveling to school together are important factors in the communication patterns of teachers (Chesler and Fox, 1967c, 26).

What do teachers talk about within their peer social groups?* The two most often talked (or gossiped) about topics of teacher talk are their students, either

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*Brenton (1970, 156) quotes a New York city teacher as recalling that before the teachers' union "there was one principal who did not permit teachers to talk to each other!"

the very good or the very bad, and other teachers, (see Channon, 1970; Brenton, 1970).

From his extensive observations of elementary school teachers, Jackson (1968, 144) found four aspects of "conceptual simplicity" evident in teachers' language. They were:

1) an uncomplicated view of causality;
2) an intuitive, rather than rational approach to classroom events;
3) an opinionated, as opposed to an open-minded stance when confronted with alternative teaching practices; and
4) a narrowness in the working definitions assigned to abstract terms.

Simpson found that although some teachers "got together socially more often with teachers than with non-teachers," this made them no more "professional" than those who did not (1969, VI-41, 43). He speculates several possible reasons for this:

> Perhaps when teachers got together they did not talk shop, and perhaps if they did talk shop the effect was to solidify unprofessional attitudes instead of professional ones. More likely, their off-the-job social activities simply were not translated into professionalizing interaction or solidarity on the job (1969, VI-44).

One possible explanation for or result of the seeming triviality or shallowness of teacher interactions could be that there is little feeling of professional colleagueship among most teachers. Teacher associations are not a great builder of colleagueship, as only about 15 per cent of the members are active in professional associations.

Dreeben notes that colleagueship in other professions takes at least two forms (1970, 212). Members of professions such as law, medicine, engineering and so forth generally form an epistemic community for sharing "information" about their respective works. Colleagueship in this form is usually maintained through publication and conferences. A second type of colleagueship usually exists among those working in the same place.

According to Dreeben, the "traditions" developing and sustaining an "epistemic community" do "not prevail in teaching" (1970, 212). This area will be explored in a later section of this study.

A number of characteristics of teachers and teaching contribute to lack of colleagueship in the work setting. Teaching, as it exists in most schools, does not require a division of tasks among teachers. Most teachers are isolated by and in their classrooms from contact with other teachers while working. Dreeben observes that unlike members of other occupations, teachers "learn very little at first hand* about what their colleagues are doing and how well they are doing it.... Teachers talk about their work with colleagues; academicians ... often actually do their work when talking with colleagues," (1970, 52). Classroom time demands and genuine fear by most teachers of being evaluated by anyone also detract from the notion of colleagueship, (see Jackson, 1968; Chesler, 1966; Dreeben, 1970). Simpson found that a "portion of group members [of colleagues] are psychologically oriented away from the group, the women wanting to become full-time housewives and the men hoping to be promoted into the ranks of management." He also notes that high turnover reduces the cohesion of colleague groups, (1969, VI-46, 47).

Teacher/Principal Relations and the School Setting

This section attempts to describe teachers' perceptions of their administrators (mainly principals), administrators' perceptions of teachers, and the nature of teacher/principal interaction.

Several authors note the increasing bureaucratization of the schools (Katz,

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*Emphasis is Dreeben's. The literature indicates that most teachers learn little at any "hand" about each others teaching techniques.

1971; Heller, 1971, 365). The notion of the "teacher as functionary" is also often referred to in the literature (Sieber, 1971; Shaefer, 1967, 38).

Simpson (1969, VI-45) notes that "organizations which employ semi-professional women in large numbers tend to be authoritarian in administrative style. The employees are bound by numerous rules and they expect to be told what to do, often in considerable detail which leaves them little latitude." An example of this sort of situation is reported by Brenton (1970, 236) who found that, at one school, the teachers were not permitted to write comments on children's report cards without special permission from the administration. Instead, they were supposed to choose one or more from a set of 37 comments supplied by their administration.

Rittenhouse found that in the area of educational planning for a school, teachers participate least in all areas when compared with other school educationalists (1971, 81). He also reports findings by Doughty that teachers perceive their roles primarily as implementation (1971, 77).

Studying San Francisco Bay area teachers, Rittenhouse, Chorness, and Heald found that their areas of highest involvement in decisioning processes were:

1) Determining method of instruction within the classroom;
2) Determining the schedule in the teachers' own room;
3) Selection of instructional supplies;
4) Grouping, promotion, and grade-reporting practices;
5) Curriculum planning and development (1970, 13).

He points out that, except for the last item, there is no overlapping with the high involvement areas of any other school employees. Regarding curriculum planning, Brenton (1970, 123) found many teachers he interviewed complaining that "they're merely asked along for show, and [that] their decisions are disregarded. Or they said that only teachers who were "sympathetic to the administrators' point of view" were asked to participate. Simpson (1969, I-10) observed that "the compliant predispositions of women teachers help to develop a habit of

command in their principals, which affects the principals' dealings with all teachers regardless of sex." Nelson and Besag state that curriculum decisions are often made at higher levels, without reliance upon the expertise expected of teachers (1970, 177).

An interesting summary of the above statements can be gleaned from the finding that "principals considered faculty meetings 'attractive, free, and productive situations,' while teachers reported that they were generally cautious in their participation and neutral or negative in attitude (LeFevre, 1967, 443). Although attribution of cause or effect seems unclear, the relationship (at least formally) of many principals and teachers seems clear, if not exaggerated. Both Brenton (1970, 158, 159) and Sabine (1971a, iii) report that the principal/teacher relationship often parallels the teacher/student one.

Opinions and data cited above lend support to the idea that the principal/teacher relationship may have a somewhat "stifling" effect on the teacher and that most formal contact with their principals is viewed negatively by teachers. Other research would seem to indicate that this is not so. Simpson (1969, VI-45) found that both formal and informal interaction between teachers and principals increased teachers' job satisfaction. Positive effects of the principal's communication patterns were also observed by Charters (1969, 37).

The notion that the teacher/principal relationship is stifling is not confirmed by Chesler and Barakat. They found "no apparent relation between teachers' perceptions of principals' support for innovative teaching and their own creative efforts" (1967, 215). Also, "informal relations with staff, accessibility, sharing of decision-making power, and supervisory emphasis," as aspects of principal behavior, did not affec .novation and sharing among teachers.

Supportive of the above conclusions is the finding by LeFevre that principals hesitate to interpose in a classroom, "although they agree that they must deal

with serious discipline problems." LeFevre also notes that women principals are more apt to provide help with teaching techniques, while men principals often see provision of supplies and the like as their chief "supervisory" role (1967, 442, 443).

Most teachers, except for some beginners, strongly dislike being evaluated. Brenton cites an NEA poll showing that "only 30 per cent of the teachers reported desirable outcomes following evaluation..." (1970, 248). He also notes that some teachers would rather change job locations than remain in a school or district where they are often evaluated (1970, 245). Jackson found among his sample of teachers recommended as superior by their administrators a strong aversion to being "observed" (1968, 132).

Limits of Teacher Autonomy

In regards to teacher autonomy, Jackson noted that the teachers he interviewed were not terribly bothered by a prescribed curriculum as long as they had "room for spontaneity and the exercise of professional judgement" (1968, 133). Brenton notes that "most teachers have a great deal of informal autonomy" (1970, 159) within their classrooms and within the constraints of the curriculum. Sieber (1971, 19) brings out that the low visibility of teachers' activities "makes it possible for them either to evade regulations or to give strictly token compliance...." This writer's conversations with several teachers suggest that "token compliance" is an often-used tactic by some teachers (see also Channon, 1970).

When the facts that "the policies governing many of teachers' central activities originate from. . .guidelines set by...administrative superiors" and that advancement and promotion in teaching is also controlled by these superiors (Dreeben, 1970, 50) are noted, however, it becomes clear that a teacher's autonomy

differs radically from that of a lawyer, doctor, or university professor. The lack of colleagueship and professionalism described earlier is no doubt also a contributing factor. The dilemma of teacher autonomy and professionalism is well summarized in the following from Simpson's report:

> Our male teachers are low in colleague reference group orientation, partly because most of their colleagues are women and partly because so many of them aspire to principalships and therefore look mainly to their superiors for approval. Neither the community, colleagues, nor principals seem willing to grant much professional autonomy to a predominantly female group such as teachers. As a result, teachers whose orientations are highly professional tend to feel that the members of their role-sets do not support them in their efforts to be professional. In its whole atmosphere, the typical school comes to resemble a bureaucracy, where employees are governed by rules and instructions, more than a professional organization where they govern themselves (1969, I-11).

COMMUNICATION PATTERNS OF NON-USERS

From a summary of research findings...

> In the Canonical Correlation Analysis between the twenty components and the eight subtests of the organizational climate profile, the first two canonical correlations proved to be significant beyond the .002 level. These two canonical functions revealed seven components which were closely related to the climate profile subtests. Five of the seven components were comprised of both personality and structural property variables such as dependent, conservative, concrete, and practical personality traits sharing the variance within a component with highly formalized and highly centralized structural property characteristics (Briner, 1970, 1).

It would seem that teachers' initial experiences in the classroom have a negative affect on their attitude toward "theory" which is most likely transferred also to "research." From conversations with both student and practicing teachers, it has been this writer's observation that most teachers tend to view most of the "theory" and other educational "data" that they acquired in teacher training as "useless." Ornstein (1970, 32) has also observed that a

number of teachers discount or "resist" research by saying that it is "all good theory, but it doesn't work."

Robinson summarizes teacher reactions to the contradictions and perceived limitations of educational research data this way: They [teachers and administrators] tolerate the 'ivory-tower' reports but rely on the 'tried-and-true' practices with which they are comfortable" (1961, 407). This view is supported by Jackson who, upon inquiring into elementary teachers' rationales for employing various pedagogical means and strategies in their classrooms, found that they rarely "turn to evidence beyond their own personal experience" to justify their professional preferences (1968, 146).

Brodbelt (1965, 152) reports that a survey trying to measure what 156 teachers knew about learning theory resulted in the finding that the respondents "were so ignorant about learning that between one-third to a half [of them] believed 'students learn by repetition...primarily by imitating.'"

Another intrapersonal communication attribute of teachers that likely accounts in large measure for their non-use of research is that teachers are not very active or thorough inquiring systems. This notion is implicit in several of Jackson's observations (see above, p. 7). He generalizes that teachers "are unusually willing to accept things as they are without probing too deeply into the whys and wherefores" (1968, 144). (The reader should recall that his sample was of teachers chosen as superior.) From his observation of teachers, he found that while teachers will sometimes seek explanations as to why certain tactics didn't work or why certain children didn't "learn," they seldom inquire into the causality of "their" successes. The teacher more often reacts to positive manifestations of learning by a pupil as "minor miracles" (almost mystically), although among his or her peers, of course, "credit" goes to the teacher (Jackson, 1968, 144).

It is often observed that time is an important constraining influence on the ability of teachers to think about their functions in more abstract or inquiring ways. One experienced teacher has remarked that teachers are so busy with their "daily doings" that it is difficult to separate themselves from their functions, "to see what is happening." The result is that teachers are "vulnerable to each day's experiences in a special transient way" (Channon, 1970, 4).

The maintenance or "survival" requirements of the classroom demands of most teachers hinder their setting, seeking, and evaluation of long-range goals or their seeking of "new information." Sieber quotes an Ohio teacher as asking:

> How is a teacher to 'keep up?' [sic] I am much too busy as a currently employed teacher to sift regularly through the masses of research material and the reports of innovations in the various periodicals for ideas which might be useful in my situation (1972, 7).

It appears that the demands of the classroom situation require the teacher to "deal" largely in conceptually concrete ways. Research conducted by Joyce, Lamb, and Sibol (1966, 222) indicates that "the more concrete teacher is less able to absorb and utilize information about children...[and] appears less able to help children explore problems than his abstract counterpart." They further note that studies which were then in process indicated that few of those entering teaching were abstract in conceptual development. Jackson's observation that teachers are often satisfied by attributing single causes as producing single effects (1968, 144) would seem to indicate that elementary teachers are "typically" fairly concrete. If, as Joyce, Lamb, and Sibol found, conceptually more abstract teachers definitely tend to help children "define and advance problems" more through their communicative behavior, it is not unreasonable to speculate that the teachers themselves would be more apt to engage in problem-naming and systematic information-seeking behavior more frequently as well.

Also at the intrapersonal level, there may be influences on teachers re-

sulting from their perceptions of research processes and "hardware." One author points out that teachers often perceive of research findings as written in incomprehensible language, located in obscure journals, too statistical, limited in applicability because of their specificness or control of uncontrollable variables, and not relevant to classroom problems (Hamilton, 1969, 34). Similar "constraints on the obtaining and use of educational information" reported by Ornstein (1970, 32) are that many teachers "lack understanding of research techniques" and are "unable to interrupt [sic] findings." Thus a teacher's perceptions of his or her own competencies to "use" research data may inhibit his or her use of it. Robinson noted that since educational research data as a whole is generally incongruous, teachers and administrators, "unable to evaluate differences in findings...become suspicious of educational research..." (1961, 407; see also Lazarsfeld and Sieber, 1964, 57). Perceptions that searching for "information" is likely to be an arduous task may also affect teacher behavior (Rittenhouse, 1971, 76).

Many of the characteristics describing peer communication patterns among teachers presented in the background section are typical of the non-user and non-producer of educational research since the "typical teacher" usually engages in neither of these activities. Findings of several other researchers that pertain more specifically to the subject of this section are reported below.

Whether resulting from the above-noted negative perceptions of research and research data or not, teachers make little use of such material in printed forms. Lazarsfeld and Sieber (1964, 58, 59) reported a study of 1580 elementary school teachers which indicated "that teachers do not read publications which contain research results." The NEA-Research Bulletin, the Journal of Educational Psychology, or the Review of Educational Research was read by about one per cent of the respondents. Not one of the publications which teachers read

regularly was listed in America's Educational Press as sources of research data (Lazarsfeld and Sieber, 1964, 59).

Probably related to reading and "use" of research data is the simple physical availability of it to the teacher. Proximity and complexity of organization of "information" have been found to influence "sources" of "information" to which people will turn (Rittenhouse, 1971, 76; Cuadra, 1969, 6).

"Information" sources to which educators turn most often, however are persons. Rittenhouse (1970, 3) found that "local or informal contacts are common sources of new ideas" in schools.

Two findings of Sabine's recent national survey of high school teachers raise questions as to the extent of opportunity for "information exchange" teachers find (or make) in their schools and as to the impetus most teachers might have for engaging in such activity. Sixty-four per cent of Sabine's sample disagreed with the statement that they had "sufficient time and opportunity to talk with and learn from other faculty" (1971a, 127). Yet ninety per cent of the teachers thought that "the conditions under which I teach are reasonably good" (1971a, 127). Apparently, talking with and learning from other faculty have little bearing on "teaching conditions." (This seeming contradiction may be the result of differences between teachers reporting individual values and social expectations.)

Teachers' interactions with researchers themselves may also have a negative influence on their "information-seeking" and research "use" behavior. Chesler (1967d, 470) speculates that:

> ...it often seems that those educators who have had the greatest contact with research efforts in the past are now most antipathetic toward further involvement. 'It's a waste of time' and 'We never get anything out of it' are typical practitioner responses (1967d, 470).

Lazarsfeld and Sieber describe an interesting paradox regarding teachers' non-use of research findings because they believed that too many important vari-

ables were ignored or "held constant" in the experiments. "This attitude makes it difficult to try out the experimental results in the school in order to make the new approach more realistic; and this in turn makes the approach unacceptable in the schools" (1964, 54).

That teacher language is characteristically lacking in a specialized vocabulary relating to teaching and that educational researchers' language is generally "jargonistic" are both more or less common "knowledge." This difference is one indication of the professional differences between researchers and teachers in their degree of "occupational sophistication" (i.e., epistemic community or community of colleagues).

Most "typical" principal behavior is not likely to be supportive of teachers functioning as inquiring systems unless this inquiry is carried on within the limits of school bureaucratic structures. Chesler's research indicates that "teachers who feel that their colleagues have little influence on school policy are themselves unlikely to begin or support activities leading to classroom change" (1967c, 26).

Commenting on administrators' likely reactions to attempts at "innovation" in their schools or school systems, Wynne notes that administrators are apt to perceive such activity as threatening either their competencies or opportunities for advancement or both (1970, 245). Stability is the objective of most bureaucratic organizations.

COMMUNICATION PATTERNS OF USERS

Recounting a "profitable" instance of reading a book review in the HARVARD EDUCATION REVIEW, Channon admits: "Why I had even read this far was beyond me. It was not my usual taste in literature..." (1970, 80).

Studies of research utilization among teachers are almost as difficult to

find as are teachers who read, talk about or otherwise make "use" of research data. The work of Rittenhouse, Chorness, and Heald exhibits pioneering efforts at describing the "information use" patterns and characteristics among public school educators. The several additional studies reported in this section are included because their findings may have implications regarding the research communication patterns of teachers.

Two experimental studies by Phares (1968; Davis and Phares, 1967) offer implications as to the personality characteristics of persons who engage in "information-seeking" behavior more than others. Using college students as subjects, Phares found that "individuals with a generalized expectancy that reinforcement is contingent upon their own behavior [internals] tend to actively engage in information-seeking to a greater degree than individuals who do not hold such a generalized expectancy [externals]" (1967, 556, 557). However, his experiments also indicated that "situational variables" are an important conditioner of "information-seeking" behavior (1967, 559, 560).

Another interesting finding of Phares' research is that when internals and externals both acquired "information" to the same level of proficiency, internals were better "utilizers" of the data than were externals (1968, 658).

Surveying "information" "needs" and "uses" in 65 San Francisco Bay area school districts, Rittenhouse (1970, 13) (along with Chorness and Heald) found that "teachers' information needs appear to be primarily in classroom practice and curriculum." This would seem to follow from other findings that these are the areas in which teachers have the greatest degree of choice.

Rittenhouse also found that educational "users" "prefer operationally oriented information and are less interested in the research findings presented conventionally in many professional journals," (Rittenhouse, 1970, 71, 72). Lazarsfeld and Sieber's finding that teachers were much more frequently involved

with field service types of "information" than with the more abstract and depersonified (disembodied) forms of "information" is consistent with Rittenhouse's finding. Teachers' tendencies toward conceptual concreteness is likely a factor in their preference for operationally oriented data (see above, p. 2).

Non-print media are "rarely desired as a sole or primary vehicle of information," according to Rittenhouse (1970, 71, 72).

Sources of "information" closer (and presumably more available) to those seeking data were most often used. Reporting on the Rittenhouse study, Chorness notes that the five most frequently used sources "involve direct person-to-person contact" (1969, 49). However, no measure of the content of these "contacts" was attempted. Thus it is not possible to infer the extent to which educational research was talked about as contrasted with classroom experiences or perceptions of school or organizational constraints for example.

Reporting that printed data formats are little used, Chorness ascertained that "least frequently used at the time of this survey were the Federally funded training and R&D programs," with ERIC being used least (1969, 10).

Intercommunication for the purpose of "information-seeking" was most often informal in nature (Chorness, 1969, 10). The five most frequently "used" data sources reported in the San Francisco study were: "...colleagues in one's own school system; principals and vice-principals; contacts at professional meetings; superintendents; and curriculum specialists," (1969, 10).

One other study related to teacher communication patterns is of interest, although there is no data reported describing whether or not the "information" involved pertains to formal research data or to experiences. In light of the Rittenhouse, Chorness, and Heald findings concerning most frequently used "sources of information," factors affecting sharing among teachers become a subject of interest.

Robinson states that "the results obtained by an astute teacher experimenting with a new procedure often lead other teachers to accept the practice.... It is not unusual...to find a school or school system committed to a practice that worked well with one good teacher" (1961, 408). While this seems rather optimistic, (particularly when data concerning teacher colleagueship are considered, see above, p. 13), it does point out the potential of such activity. The Chesler and Barakat data should be prefaced with the finding that although it would seem that teachers "are inventing practices for use in their classrooms...it appears quite clear that there is not a great amount of sharing going on among school staffs," (1967b, 217).

In their analysis of the data from 473 self-report questionnaires completed by the professional staffs of 21 elementary and secondary schools in Michigan, Chesler and Barakat distinguish between the sharing of classroom practices and innovation by noting that the former "requires some mechanism for information processing among peers" (1967b, abstract).

Teachers who engage in sharing activities more than others generally are:

relatively new to the profession but have some teaching experience (211)

concerned with building pupil-planned and informal classroom atmospheres (212)

secondary teachers who report spending a great deal of time on their classroom teaching duties (212)

generally interested in change and developing new ideas (212)

more likely to have urban backgrounds (212)

likely to have lower church attendance (94)

likely to participate more in informal professional exchanges (146)

likely to participate more in formal channels of exchange as committees and education associations meetings (147)

of the feeling that they have power or influence within the school (145)

holders of a liberal arts background in college work (211)

of the feeling that staff relations are closer and more personal (129)

better liked by their colleagues (129)

Chesler reports that "in general, broad and basic personality and attudinal predispositions...do not relate significantly to teachers'...sharing of teaching practices" (1967b, 95). Somewhat contradictory with this, however, is his statement that teachers "who have a sense of their own personal power" and who feel that their role within the school decisioning structure is influential are more frequent innovators and are more apt to share (1967b, 213, 145). The possibility that "sense of power" and a person's identification as an internal or external suggests a potential for exploring some interesting correlations between Phares' experiments and Chesler's studies. Chesler points out, however, that his findings suggest that "neither innovation nor sharing are very widely perceived as ways of satisfying...social orientations," and that needs for influencing colleagues, achievement, and affiliation "may all be sought and satisfied" in other ways (1967b, 69).

Concerning principal and administrator support or non-support of "information use" and communication among teachers, Chesler's and Fox's findings indicate that teachers "must know that they have the backing of their fellow teachers and their administrators if they are to be willing to try new ideas" (1967c, 26). In another study, Chesler found that principals' "efforts associated with teacher innovation and change are not very productive" (Chesler and Barakat, 1967b, 215).

In an interview with an experienced elementary teacher in New York, Brenton found an interesting comment on the supportive/non-supportive role played by at least one principal. The teacher said that she often came up with ideas to implement in her classroom. Some, however, required the principal's approval. Although he had never refused, he always said to her: "...don't tell any of the

other teachers. They couldn't handle it." Brenton said "she remarked that her relationship with her principal is very strange: They are in collusion for the sake of creativity, and at the same time they are in collusion against it" (1970, 161).

Little data was found that indicates a general or consistent role of support or non-support regarding teacher "information" use among principals or administrators.

TEACHERS AS PRODUCERS OF RESEARCH--AN INSTANCE

Even less data was found concerning teachers as producers of research. The one study found relating to this subject, however, is worth reviewing in some detail.

After its first year in operation, the New Jersey Teacher Innovation Program was evaluated in terms of the characteristics of those teachers receiving "minigrants" (small grants funding teachers' project proposals) to experiment in their classrooms, the effects of the minigrant projects, and the dissemination of "information" about the projects.

The function of the Teacher Innovation Program was to provide classroom teachers in New Jersey the opportunity and funding for "developing and implementing their own ideas about teaching-learning in their schools" (Walthew, 1970, 3). For the 1968-69 school year (the program's first), 497 teachers submitted project proposals to the State Department of Education which administered the program. One hundred eight projects received awards ranging from $300 to $1000 (Walthew, 1970, 2).

For his investigation, Walthew was able to gather data on 86 of the grant recipients and their projects. The findings of particular interest to this review are summarized below, interspersed with comments as to their possible implications.

There were nearly equal numbers of men and women teachers receiving grants

93% of the recipients had done additional work in college past the baccalaureate and 86.7% held advanced degrees

40% were teachers at the elementary level and 10.5% were not classroom assigned teachers

Only 32.5% of the recipients expect to still be classroom teachers by 1975, 3.5% of the them plan not to be in educationally related work.

That the proportion of men recipients is a good deal higher than the percentage of men teachers in New Jersey or the United States (about 35.5% males) might be indicative of the criteria (implicit or explicit) for selection. However, when considered with the graduate experience and career plans indicated by the recipients, these data tend to replicate the findings reported above on the interest of male teachers in career advancement.

The almost inordinate number of recipients with graduate credit raises the question of whether this (or any of the other characteristics) was a result of the selection process, i.e., belief that graduate work "certifies" a teacher for doing research, or whether the same proportions of graduate experience were characteristic of all 497 teachers submitting proposals.

Nearly all minigrant recipients saw themselves as having "innovated" in their classrooms in areas of content, strategy, and technics prior to application

Table 1

Number and Percentage of Minigrant Projects by Type of Innovation Perceived by Recipients (N=83) (p. 20)

Type of Innovation	No. of projects	%
Adoption	5	5.8
Adaption	32	37.2
Creation	46	53.5
Total	83	96.5

Table 2

Number and Percentage of Minigrant Recipients by Perception of Type of Innovating Done by Other Teachers in Their Buildings (N=72) (p. 20)

Type of innovation by other teachers	No. of recipients	%
Adaption	41	47.7
Creation	14	16.3
Adoption	12	14.0
None	5	5.8
Total	72	83.8

13% (the second highest percentage group) attribute professional reading as source of their project idea, ("recipient's own thinking" was first--54.6%)

Lack of faith in the creative ability of their peers as evidenced in the respondents' perceptions reported above would seem to be indicative that these teachers tend toward a low level of peer colleagueship. If this lack of attribution to other teachers, coupled with the respondents' high degree of "self confidence," is more "actuality" than the result of research instrument bias, then the findings reported earlier that most teachers' "information-seeking" is among one's colleagues would lead one to believe that such activity would prove "frustrating," to say the least, in peer groups containing teachers such as those described above.

68.6% said their administrators encouraged new ideas in the classroom; another 24.4% said they were "free" to try new ideas

66.4% received help in deciding to apply from administrators, while only 1.2% (n=1) received help from a fellow teacher, (18.6% said no one helped them)

Administrators were consulted three times more by frequency than teachers during the recipients' preparation of their proposals

These findings suggest that administrators play a potentially key role in the support of teacher efforts at producing research. However, since this program

was initiated and sponsored chiefly through the bureaucratic structure of the educational system (and "through the cooperation of" the New Jersey Education Association), one cannot be certain what the role of administrators might have been had the program not been "administratively connected" so directly.

> Peer awareness of implementation of a teacher's project was most complete in the immediate vicinity of a teacher's classroom and decreased proportionally with physical distance from the room (p. 26, 27)
>
> The greatest incidence of use took place among teachers in the recipients' teaching fields or grades in their own buildings. Forty-two recipients reported that their projects were being used by a total of 194 of their teaching area associates. Thirty-one of the 42 estimated their projects were being used by from one to five teachers (p. 34)
>
> This study found the spoken word to be the principal means of disseminating information about the projects. Specifically, information seemed to be communicated mostly through informal conversations between recipients and teachers and through oral exchanges between building administrators and teachers (p. 59)

Table 3

Number of Projects by Degree of Influence on Minigrant Applications and Category of Teacher (N=69) (p. 40)

	Category of teacher			
Degree of influence on minigrant applications	Teachers in the same teaching area in recipient's building	Teachers in a different teaching area in recipient's building	Teachers in another building in recipient's school district	Teachers in another school district
Proposals actually written for submission to State Department of Education	18	30	18	7
Strong interest in writing proposals	12	7	3	1
Mild increase in writing proposals	6	8	3	1
Little or no interest in writing proposals	12	8	4	-
Decrease in interest in writing proposals	-	-	-	-

These findings suggest to this writer that an investigation into the reasons or rationales for "use" of the minigrant projects might yield interesting results. For example, was "use" of a project "stimulated" through social pressure and/or a sense of status or competition in the peer group, or through the "merit" of "results" of the project? Given the nature of teacher/peer relations described ealier, one would predict the former.

Further study into the nature of the projects themselves and the degree of grant recipients' "utilization of research" might also prove revealing. Were the "innovations" "created" by the recipients actually "new" ideas not to be found in the extant research data? Or do teachers often "reinvent the wheel" rather than engage in systematic data searching?* Scanning the titles of the projects, this writer observed that few of them seemed to have a theoretical orientation. More, it seemed, contained implied assumptions that certain theories or methods "work." Based merely on the titles, however, this may be an unfair criticism.

Walthew observed that recipients seemed "inner-directed" and that a chief effect of performing a project was "professional self-actualization" (1970, 57, 59). One wonders also if this characteristic was "acquired" before or as a result of (or incidental to) participation. The data suggest that recipients were probably "inner-directed" or at least highly motivated on entry, thus possibly supporting Phares' findings (see above, p. 27).

Whether or not the effects of such a program on the "knowledge utilization" and "production" patterns of teachers are "actual," "desirable," or neither

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*Speaking of the sciences, Walter J. Ong has speculated that, given "the mere bulk of learning...it is occasionally less time consuming to repeat certain bits of research than it would be to comb the vast float of extant literature for needed information," (1968, 11).

remains to be demonstrated. Nevertheless, in implementation, it is an interesting approach.

CONCLUSION

Assuming that, as implied in the data here presented, teachers are not "utilizing educational knowledge," and assuming that the desired goal or state is that teachers "utilize" and "produce" such data, several questions arise:

> What sort of role description is it desirable for teachers to adopt?
>
> What characteristics would teachers have to develop to "fit" this role?
>
> And how does one get there from here?

It is difficult to "know" of whom to ask these questions. For example, if colleges of education "know" the answers, and are attempting to "utilize" them, why do the questions remain when teachers leave college and enter the classrooms? If teachers are answering them, then why are so many teachers dissatisfied with teaching? (And why are so many other persons "intervening?") If school administrators are trying to answer them, why is teacher/administrator interaction so infrequent? If educational researchers "know" the answers, then why do they still appear to be working on them (or why can't they agree)?*

The issue (unless one decides that there are no "answers," in which case the implication for action is obvious) is who decides what teachers do--should or should not "know"? And how can anyone decide for another person what he "needs" to "know" and expect anything short of failure in getting that person to "know" the <u>way</u> (with the same result) he has decided that the other person

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*Perhaps they are just trying to replicate--"prove"--their "answers"?

"needs" to "know"? While these questions may seem facetious, the writer submits that they are very "real." For it appears that "knowledge utilization" is not as "objective" or value free a concept as most "knowledge utilization personnel" would have us believe.

The problems raised by the dynamics of these questions in currently "functioning" systems are fundamental to concepts of "knowledge utilization." They "need" to be faced and grappled with. The problem of "knowledge utilization" is not a simple matter of "linking" the "knowledge" with the "utilizer." It is much more complex.

Take, for example, the concept of "knowledge linker" being developed as an occupational role through Federal funding. The notion of "knowledge linkers" for "connecting" the "gulf" between teachers (intended "users" of "knowledge") and researchers (The producers of "knowledge") serves only to widen that "gulf" by further splitting the competencies* of both teachers and researchers. It also serves to increase exponentially the amount of effort involved in the "utilization of knowledge by multiplying by a "middleperson" the work of both the teacher and the researcher. For teachers will still "need" to "know" what they "need" to "know," and researchers will still need to attempt to "know" what the teachers "need" to know. The notion of matching "results" with "questions" seems wasteful, for no person can "know" what another person "needs" (or "knows" already) without being that person, (although persons can approach "knowing" the "same thing" by adopting common strategies and tactics for acquiring "knowledge"). Ridiculous enough is the already split or "separated out" role of the researcher. To be of any value to the teacher, a researcher "needs" to

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*See "The Functions of Incompetence" by Thayer (1972) eds. E. Laszlo and E. Sellon in Festschrift.

"know" what the teacher "needs" to "know" -- that is, to be a teacher. Enter the "knowledge linker" who, unless he is to fail, "needs" to be both a teacher and a researcher, and simultaneously--a "knowledge linker"!

The difficulty blocking current approaches to "increasing" "knowledge utilization" in education, raised in the above questions, this literature review, and in other documents of this NCEC project, is that educational researchers and the "intended" users of research, teachers, belong to different (if existent) epistemic communities, neither of which contains any unified, systematic, or underpinning theory.

The analogy of "knowledge utilization" in medicine demonstrates this clearly.* Some medical doctors engage in medical research and others in medical practice. The roles, however, are not that distinct or ossified. A medical researcher can shift to practitioner without being required to relearn his profession. A practi ioner can likewise shift to researcher. In either role there are basically the same systematized strategies (theories), in addition to standard tactics, for inquiry. A scientist, such as a doctor, whose discipline is based on a unified theory consisting of common strategies and tactics is a member in an "epistemic community." Among such a community, common competencies of inquiry enable members to take "information" into account similarly. Thus they are able to generate and disseminate, and acquire and process data in their professional roles with comparative ease. It would appear that developing a higher level of "knowledge utilization" of educational data may mean developing an epistemic community among educators.

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*While "knowledge utilization" in the field of medicine is much less a "problem" in contrast to "knowledge utilization" in education, it is not a "perfectly functioning" concept. The "functions of incompetence" described by Thayer (1972) have invaded medicine and many other sciences probably help to explain the rising dysfunction of "knowledge utilization" in medicine. This analogy is probably truer of medicine as it was fifty or eighty years ago.

Simple tactical approaches alone, such as "knowledge linkers," will only muck up the problem by increasing its complexity and thus "requiring" more division of, i.e., different, competencies. Tactics such as devising "information" systems in areas (not disciplines) serves only to file data in categories. Since the categories are not linked according to any systematic theory "information" grows or accumulates only bulk, not organization and categories increase in ambiguity (i.e., become less mutually exclusive). While the scientific disciplines (including medicine) are "suffering" from the complexity of over-organization, education, on the other hand, seems to be suffering from simplicity in under-organization.

This analogy between education and medicine and the conclusion that education is under-organized suffer from at least one major assumption: That education should or can become a science. There are those educationists who are convinced that education is over-organized; that it has become too highly structured and proceduralized to allow learning to occur within it. Paul Goodman, for instance, submits that, if left to their own incidental modes of inquiry, most children would learn to read by age nine in the same manner as they learn to talk (1970).

This concept of incidental learning, however, still implies a theory about education. Thus, the pursuit of a general theory of learning and education would seem to be worthwhile in developing an epistemic community and "knowledge utilization" in education.

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